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Electrical Contracting

December 1928

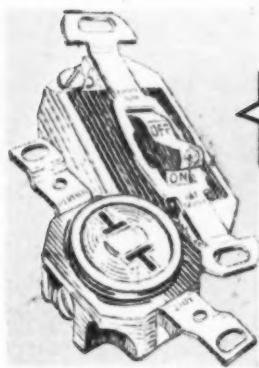
With Which Is Incorporated
The Electragist

HAZARD WIRE FOR EVERY INSTALLATION

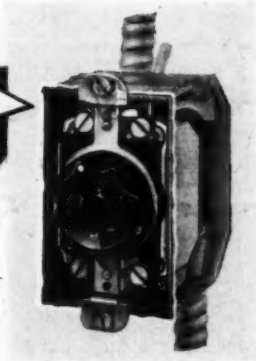


HAZARD INSULATED WIRE WORKS

Division of the Okonite Company
WORKS: WILKES-BARRÉ, PA.



A Switch and Outlet in one Unit



Simply turn the
outlet to switch on
the current

More convenient—Better looking Easier to wire

BOTH electrical contractor and tenant find desirable advantages in the Hubbell Switch-Tap.

The handiness and neat, compact appearance of this combination switch and outlet pleases every tenant. Operation of the device is extremely simple. A slight turn of the "finger-grooved" outlet controls lights, and the Te-Slots, always alive, are at a convenient height to accommodate any appliance.

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Electrical contractors profit through the installation as well as the sale of Switch-Taps. This combination device can be installed in less time with less material. Just one device to mount and wire. No looping. Less skinning. Only one single box and plate required.

Use the coupon for full information about the convenience and simple installation of Switch-Taps.

HARVEY HUBBELL, Incorporated
Bridgeport, Connecticut, U. S. A.



HUBBELL *Switch-Taps*

Mail coupon to our nearest office

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Atlanta, Georgia
138 Marietta St.
H. C. Biglin

New York City, N. Y.
30 E. 42nd St.

Main office:
Bridgeport, Conn.

Chicago, Illinois
318 W. Washington St.

Denver, Colo.
1109 Broadway
The Sales Service Co.

Philadelphia, Pa.
Fifth St.
Philadelphia Bourse
(Exhibition Dept.)

San Francisco, Cal.
390 Fourth St.
Garnett Young & Co.

Please send information on Hubbell Switch-Taps

Name

Address

City and State

E.C. 12-28

Electrical Contracting

With Which Is Incorporated The Electragist

S. B. WILLIAMS
Editor

Vol. 28

DECEMBER, 1928

No. 2

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6

WIRING SYSTEMS
and FITTINGS
FOR *Every*
CONCEIVABLE
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NON-METALLIC
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- 4 Romex reduces labor costs on new work
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- 6 Romex can never rust—it will last as long as the house it is in
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If you would like more information about Romex, write for the latest Romex booklet.

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DIVISION of GENERAL CABLE CORPORATION
Rome, New York

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FROM WIRE BAR TO FINISHED COPPER WIRE

THE MOST
IMPORTANT ANNOUNCEMENT
ever made to electrical con-
tractors—at least from the stand-
point of placing their business
on a more profitable basis—
appears on the next
three pages



BEGINNING in the January issue, Electrical Contractor will feature a 32-page complete resale price list for commonly used supplies and equipment employed in the industry. The list will be based on current jobber prices and will be revised monthly.

HERE is advance proof of a typical page from the resale price section. There will be 32 pages of these suggestions with all products alphabetically arranged so that the price suggested for any product can be instantly found.

The original compilation of these prices represents almost three years of research and study by pricing experts—yet it is made instantly available and will be kept constantly up-to-date as a part of our service to you.

ELECTRICAL CONTRACTING

JANUARY, 1929

50

ASBESTOS Asbestos Millboard-Per Pound-26c.

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No. Drops	Edwards No. 91 White	Ansonia No. 201 to 300.	P. & W. "Comet"	P. & W. "Comet"
2 Drop	\$10.00	\$15.00	\$10.00	\$15.00
3 "	11.75	16.75	11.00	16.75
4 "	13.25	18.25	12.50	18.25
5 "	14.75	19.75	14.00	19.75
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7 "	17.75	22.75	17.00	22.75
8 "	19.25	24.25	18.50	24.25
9 "	20.75	25.75	20.00	25.75
10 "	22.25	27.25	21.50	27.25
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12 "	25.25	30.25	24.50	30.25
13 "	26.75	31.75	26.00	31.75
14 "	28.25	33.25	27.50	33.25
15 "	29.75	34.75	29.00	34.75
16 "	31.25	36.25	30.50	36.25
17 "	32.75	37.75	32.00	37.75
18 "	34.25	39.25	33.50	39.25
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20 "	37.25	42.25	36.50	42.25
21 "	38.75	43.75	38.00	43.75
22 "	40.25	45.25	39.50	45.25
23 "	41.75	46.75	41.00	46.75
24 "	43.25	48.25	42.50	48.25
25 "	44.75	49.75	44.00	49.75
26 "	46.25	51.25	45.50	51.25
27 "	47.75	52.75	47.00	52.75
28 "	49.25	54.25	48.50	54.25
29 "	50.75	55.75	50.00	55.75
30 "	52.25	57.25	51.50	57.25
31 "	53.75	58.75	53.00	58.75
32 "	55.25	60.25	54.50	60.25
33 "	56.75	61.75	56.00	61.75
34 "	58.25	63.25	57.50	63.25
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37 "	62.75	67.75	62.00	67.75
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165 "	254.75	259.75	254.00	259.75
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167 "	257.75	262.75	257.00	262.75
168 "	259.25	264.25	258.50	264.25
169 "	260.75	265.75	260.00	265.75
170 "	262.25	267.25	261.50	267.25
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178 "	274.25	279.25	273.50	279.25
179 "	275.75	280.75	275.00	280.75
180 "	277.25	282.25	276.50	282.25
181 "	278.75	283.75	278.00	283.75
182 "	280.25	285.25	279.50	285.25
183 "	281.75	286.75	281.00	286.75
184 "	283.25	288.25	282.50	288.25
185 "	284.75	289.75	284.00	289.75
186 "	286.25	291.25	285.50	291.25
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190 "	292.25	297.25	291.50	297.25
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192 "	295.25	300.25	294.50	300.25
193 "	296.75	301.75	296.00	301.75
194 "	298.25	303.25	297.50	303.25
195 "	299.75	304.75	299.00	304.75
196 "	301.25	306.25	300.50	306.25
197 "	302.75	307.75	302.00	307.75
198 "	304.25	309.25	303.50	309.25
199 "	</			

Contracting will publish as a regular monthly service containing suggested resale prices on all electrical construction work. Suggested prices will allow for freight rates and average overhead costs. Profit will be made!

Electrical contractors themselves, as well as all men posted on conditions in the industry, well know that one of the greatest troubles with the contracting business has been the inability of contractors to make a reasonable profit on the materials going into a job *because of the lack of information on how to price!*

Now, with one forward step on the part of Electrical Con-

tracting, this condition is going to be changed. Contractors henceforth will have in the 32-page resale price section, a reliable, complete and convenient guide that will enable them to instantly find a suggested resale price for any commonly used product, with the assurance that the price has been based on average costs to the contractor and is figured to provide a fair margin of profit.

Think of the endless amount of research and figuring this will save. And think of the importance of this service to you, Mr. Contractor, at the end of the year when your books disclose a *profit* on all material used in your work instead of a loss!

A DEFINITE CONTRIBUTION *to the Success of the* Electrical Industry

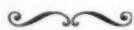


Electrical Contracting

believes that this resale price service is the most important service that can be performed for electrical contractors today.

And we believe that it is the most comprehensive and far-reaching editorial service ever attempted by a business publication.

Certainly every contractor in the United States will instantly appreciate the value of this service and will take steps to assure receiving every copy of Electrical Contracting.



*L*ikewise, we believe every manufacturer who is interested in the contractor and has a message for him will realize that here, at last is a medium, that not only covers the field but holds the interest of

Every Man in the Business

Market Development

AS this year draws to a close the electrical industry hopefully looks forward to 1929 as the starting time of the Industry Sales Promotion Plan. An agency skilled in market research has for several months been conducting an analysis of the electrical market, and its possibilities in a number of key cities. Its report and recommendation will be made to the Industry Sales Conference early in December.

In its early deliberations the industry recognized the pivotal position held by the electrical contractor in any plan for developing the electrical market. He is the public contact. He is virtually the neck of the bottle, for on the extent of the wiring depends all the other markets.

The contractor is not by training a salesman; but that is no reason why he cannot become one. Nor is he always a good manager, or estimator or constructive force.

NEVERTHELESS he is in business to make money and on the extent to which he becomes a successful business man depends in large measure the success of any market development program. He is willing and anxious to succeed. The industry wants him to succeed. The remedy is simple:

Any program for market development should include a provision, substantially as has been proposed, for setting up a trade extension institute for the electrical contractor.

The electrical contractor will await the recommendations of the Conference with considerable interest. Aside from opening up a wider market for him it offers, if the trade extension institute idea is accepted, an educational opportunity in selling and management with enough field men to take it into the highways and byways.

The publishers of Electrical Contracting look upon a market development program participated in actively and enthusiastically by all commercial branches of the industry as the only way in which the electrical industry can meet the competition of other industries for the public's dollar.

THERE are many different opinions as to how best the industry may engage in such a broad program. Let it not be forgotten, however, that the Industry Sales Conference, which has been entrusted with the task of finding the way, is composed of the chosen men of the national associations and the League Council.

The industry must have confidence in the decision of this group of men. They have demonstrated their disinclination to give a hasty decision. They have approached this question with a full sense of responsibility and a spirit of open mindedness.

Whatever their decision let the electrical industry get behind it and make it succeed.



These quality wiring materials
make wiring jobs profitable
- - profitable wiring jobs
make a good year - - and
a good year means a

Merry Christmas



DURAWIRE

Rubber-Covered Wire
and Flexible Cords

DURAFLEX

The Safe Armored Cable
and Flexible
Steel Conduit

DURACORD

The heavy-duty
Portable Cord

DURADUCT

The fast-fishing
Single-Wall Loom

DURAX

The Non-Metallic
Sheathed Cable
of Known Quality

Order Durabilt Products
by name from your Jobber

DURABILT
REG. U.S. PAT. OFF.
PRODUCTS

*Speed up
wiring
jobs*

TUBULAR WOVEN FABRIC COMPANY, PAW TUCKER, O. O.

John Wise Says:

WE'RE a funny bunch, we contractors. Seems like all we ever talk about is cut prices and curbstoners—an' both flourish. Listen to this:

"How much fer fixing up my store lights?" asks th' customer of one of our legitimate, bona-fide, regular an' orthodox contractors.

"Hundred 'n forty-one dollars an' seventy-five cents is *my* price," says he after figuring a bit on the back of an envelope.

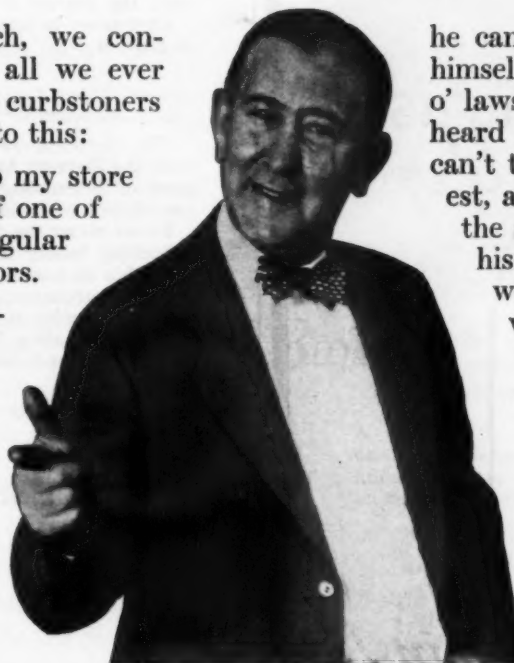
"O' course," he goes on, "You *can* get it done fer less. They's fellas in this town that'll work fer two dollars less 'n nothing. They steal the wire an' buy fittings at th' nickel-an'-dime an' they ain't got no overhead 'cause their business is in their hat, an' all th' equipment they got is a screw driver an' a pair o' pliers that they sneaked offa somebody's bench when he wasn't lookin'. These fellers get some school kid as a helper an' don't pay themselves no wages. They don't quit at th' regular time, but keep on working right up t' six o'clock, an' maybe evenings an' holidays without charging no overtime. O' course it's on'y natural a feller like that won't give you a *quality* job."

"Well," says the customer, "the job has got to pass inspection, don't it? I don't pay for it 'less it does. Gettin' by th' inspectors is quality enough for me."

"That's what a lot o' folks say, an' that's what makes this business so tough—all shot t' hell by curbstoners."

* * *

Now, it's my observation that when a contractor has explained to a man just how an' why th' curbstoner can do work cheaper than



he can, that feller's just about sold himself out of a job. We gotta lot o' laws in this country, but I haven't heard of any law that says a man can't trade where he can buy cheapest, and when Mr. Customer senses the saving he'll make when he lets his work to the curbstoner fellow we advertise as doin' cheaper work than we do, why you can't blame him fer taking our advice.

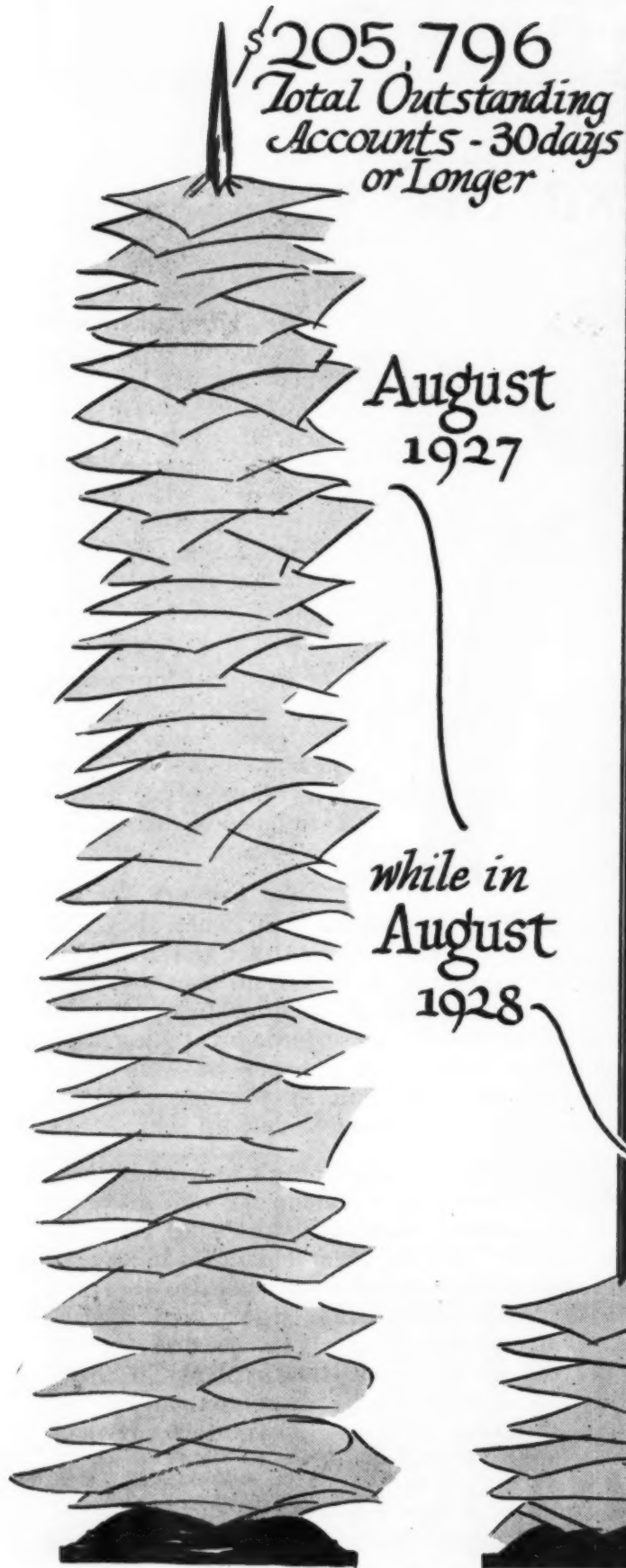
One thing we contractors don't seem to realize is that there are curbstoners in every business, but you don't hear other legitimate business men advertisin' 'em.

Take printers, for example. There's thousands o' what they call "bedroom printers"—fellas that got a rickety press at th' foot of their beds an' a case of type on th' bureau. If th' regular printers went around advertisin' these birds an' telling their customers how much cheaper th' bedroomer could do th' work, half th' printing plants in the country would have t' shut up shop.

Practically th' same thing's true of grocery stores. There's little hole-in-the-wall groceries on side streets where th' work's all done by th' family. Do th' great big down-town grocers advertise 'em. Not much! Do they say to folks, "Now I gotta charge you thirty-two cents a pound fer this cheese because I gotta big rent to pay, but they's plenty o' little dumps across th' tracks where you can buy th' same thing for twenty-nine"—do they say that? Not out loud, they don't.

The trouble we have with curbstoners is mostly our own fault. We spend too much time advertisin' 'em.

The DETR



What Is the Detroit Credit Plan?

Cash discounts are allowed by jobbers on the tenth for the preceding month's purchases, provided the account is paid in full and no back balances exist. In case discount day falls on Sunday or legal holiday, the next business day is so considered.

Any customer whose account is not discounted on the tenth and remains unpaid on the last business day of the month, will automatically appear on an arrears list until the account is paid.

Customers in arrears must pay cash until the account is cleared.

How Does It Work?

The electrical supply jobbers formed a trade group with the Detroit Association of Credit Men for the purpose of interchanging credit information which is accomplished as follows:

On or about the twenty-fifth of each month, each participating jobber files with the credit association a list of all his customers who have not paid for their previous month's purchases. From these reports the credit association compiles a master arrears list which is sent to each participating jobber. Any accounts paid after this time are immediately reported to the credit association

In
August, 1926
there were

850

Licensed
Electrical
Contractors
in Detroit

August, 1st,
1926

OIT CREDIT *Plan*

which sends out a bulletin to all jobbers thereby clearing the account.

On or about the fourth of the following month there is a jobber's meeting to consider the information thus collected.

Those concerns which over a period of six months have been unable to clear their accounts and those which have otherwise proven their inability to properly carry on a legitimate business are placed on an extra hazardous list. Most jobbers are not keen for this class of business for it represents too small an outlet.

For the purpose of investigating and supervising this work, there was established a credit committee of three men; one from the Association of Credit Men, one jobber representative and the manager of the Electragist Association.

When a contractor is in temporary difficulties he has the privilege of appearing before this committee and requesting assistance.

If warranted, after careful investigation, he may be granted an extension of time or such other help as the



N. J. BIDDLE

who as manager of the Detroit Electragists, thought out the plan and was instrumental in putting it into effect.

committee deems advisable, in which case he operates under the supervision of the committee until he is well on the way to financial stability or fails entirely.

This had shrunk to



by August 1st
1927

CONTRACTING

No better treatment is expected of or permitted to be given members of the Electragist's Association than non-members. The plan operates without fear or favor.

and



by August 1st
1928

How can other cities start it?

- 1.—The contractors must first form an organization with a strong manager because the plan to be really effective must be initiated by the contractors.
- 2.—A committee from the contractors' association should present the plan to a meeting of all the local jobbers and ask for a committee to work out the details.
- 3.—The joint committee should work out all details as to time of starting, notes for past due accounts, reporting, membership in local credit bureau, etc.
- 4.—The manager of the contractors' association should be held accountable for the success of the plan and given sufficient authority to make it work.

Is it Legal?

Yes! According to decisions of Supreme Court of Florida, Washington and Kentucky and the U. S. District Court of the Southern District of New York, merchants have a right to agree with each other to withhold credit from persons who do not pay the bills due members of the association.

Of What Value is it to Electrical Contractors?

- 1.—It automatically reduces the number of competitors to those who are competent enough at least to pay their bills. This elimination of incompetents means not only fewer contractors to enjoy the business in the city but it means the elimination of a large part of the price cutting element.
- 2.—It makes it necessary for the contractors to become better collectors of the money due them.
- 3.—It makes better competition between contractors because they all know now that they cannot pyramid and use the money for one job to pay for materials on another they took at a loss.
- 4.—It brings to the electrical contractor conditions he has always wanted without recourse to any artificial methods of price fixing or legislation, none of which ever work.



Servicing Electric SIGNS *A Profitable*

BECAUSE a certain proportion of the work involved in electric sign maintenance requires a competent electrician to handle it, a complete maintenance and hanging service offers an opportunity to electrical contractors for covering low production periods. Such a service has been established by the Guarantee Electrical Construction Company of Battle Creek, Michigan.

This company has worked out a schedule of charges covering every phase of maintenance and hanging work. It also offers a maintenance contract to all electric sign owners whereby it gives free inspection service twice a month, but charges for all other labor furnished and materials supplied according to a schedule.

Several months ago a special truck was put in service. All the equipment necessary to hang or work on a sign is in the truck. With this equipment four men can handle a one ton sign with very little trouble.

By being thus equipped the company has an efficiency that greatly reduces competition.

"This service," according to Harry T. Spier, manager of the Guarantee Company, "in itself just pays its expenses, but when one in this city thinks signs there is only one conclusion. This truck is constantly on the streets doing something with some sign, erecting, removing, relamping, painting or washing it."

SCHEDULE OF CHARGES UNDER SIGN MAINTENANCE CONTRACT

All work other than relamping to be done *only with authority of owner*. Free inspection service twice a month.
All materials and any other labor charged for as follows:

- | <p>1. LAMPS: Supplied at lamp contract price. Lamp renewal labor charge—20 cents for first lamp, 15 cents for each additional lamp up to and including ten lamps and 10 cents for each additional lamp plus 25 cents if lamps are furnished by owner to cover time getting them from his stock.</p> <p>2. CHAIN AND HANGING RIG REPLACEMENT:</p> <table border="0"> <tr> <td>Large chain</td> <td>10c per ft.</td> </tr> <tr> <td>Small chain</td> <td>8c per ft.</td> </tr> <tr> <td>Wall ells</td> <td>30c ea.</td> </tr> <tr> <td>Wall plates</td> <td>15c ea.</td> </tr> <tr> <td>4-in. lugs and shields</td> <td>30c ea.</td> </tr> <tr> <td>Through bolts</td> <td>50c ea.</td> </tr> <tr> <td>Cold shuts</td> <td>10c ea.</td> </tr> <tr> <td>4-in. by 4-in. washers</td> <td>30c ea.</td> </tr> <tr> <td>Turnbuckles</td> <td>50c ea.</td> </tr> </table> <p>3. WASHING WITH LUX: 15 cents per ft., figuring both sides. Signs should be washed every 60 days to keep them bright.</p> <p>4. SIGNS TAKEN DOWN, 50 cents per sq. ft. figuring one side.</p> | Large chain | 10c per ft. | Small chain | 8c per ft. | Wall ells | 30c ea. | Wall plates | 15c ea. | 4-in. lugs and shields | 30c ea. | Through bolts | 50c ea. | Cold shuts | 10c ea. | 4-in. by 4-in. washers | 30c ea. | Turnbuckles | 50c ea. | <p>5. REVARNISHING: Figure both sides of sign:</p> <table border="0"> <thead> <tr> <th>Type of Sign</th> <th>Per sq. ft.</th> </tr> </thead> <tbody> <tr> <td>Raised or flush glass letter</td> <td>20 cents</td> </tr> <tr> <td>Bevel channel, gold leaf</td> <td>45 cents</td> </tr> <tr> <td>Raised or flush glass with single row border</td> <td>40 cents</td> </tr> <tr> <td>Channel opal letter with single row border</td> <td>50 cents</td> </tr> <tr> <td>Bevel channel, gold leaf with single row border</td> <td>65 cents</td> </tr> <tr> <td>Raised or flush glass with double row border</td> <td>50 cents</td> </tr> <tr> <td>Channel opal letter with double row border</td> <td>60 cents</td> </tr> <tr> <td>Bevel channel, gold leaf double row border</td> <td>75 cents</td> </tr> <tr> <td>Exposed flush lamp letter</td> <td>40 cents</td> </tr> <tr> <td>Exposed channel lamp letter</td> <td>50 cents</td> </tr> <tr> <td>Exposed flush lamp letter with single row border</td> <td>60 cents</td> </tr> <tr> <td>Exposed channel lamp letter with single row</td> <td>70 cents</td> </tr> <tr> <td>Exposed flush lamp letter with double row border</td> <td>70 cents</td> </tr> <tr> <td>Exposed channel lamp letter with double row</td> <td>80 cents</td> </tr> </tbody> </table> | Type of Sign | Per sq. ft. | Raised or flush glass letter | 20 cents | Bevel channel, gold leaf | 45 cents | Raised or flush glass with single row border | 40 cents | Channel opal letter with single row border | 50 cents | Bevel channel, gold leaf with single row border | 65 cents | Raised or flush glass with double row border | 50 cents | Channel opal letter with double row border | 60 cents | Bevel channel, gold leaf double row border | 75 cents | Exposed flush lamp letter | 40 cents | Exposed channel lamp letter | 50 cents | Exposed flush lamp letter with single row border | 60 cents | Exposed channel lamp letter with single row | 70 cents | Exposed flush lamp letter with double row border | 70 cents | Exposed channel lamp letter with double row | 80 cents | <p>6. PAINTING AND VARNISHING, double varnishing schedule.</p> <p>7. SIGNS REHUNG ON OLD SUPPORTS, 75 cents per sq. ft. figuring one side.</p> <p>8. SIGNS INSTALLED WHERE WALL IRON AND HANGERS MUST BE PUT ON, \$1.00 per sq. ft. figuring one side.</p> <p>9. Electrical work on new signs figured separately.</p> <p>10. FLASHER PARTS AND GLASS LETTERS REPLACED AT MANUFACTURER'S LIST PLUS LABOR TO INSTALL.</p> <p>11. TORK TIME CLOCKS:</p> <table border="0"> <tr> <td>15 amp., single pole, Indoor</td> <td>\$20.00</td> </tr> <tr> <td>15 amp., single pole, Outdoor</td> <td>25.00</td> </tr> <tr> <td>30 amp., double pole, Indoor</td> <td>25.00</td> </tr> <tr> <td>30 amp., double pole, Outdoor</td> <td>30.00</td> </tr> </table> <p>12. COLOR CAPS:</p> <table border="0"> <tr> <td>One-half cap for S-14 lamps</td> <td>25 cents</td> </tr> <tr> <td>Full cap for S-14 lamps</td> <td>30 cents</td> </tr> <tr> <td>One-half cap for A-19 lamps</td> <td>40 cents</td> </tr> <tr> <td>Full cap for A-19 lamps</td> <td>50 cents</td> </tr> </table> <p>Color caps for S-14 lamps exchanged at 10 cents per cap plus labor or 15 cents per cap on A-17 size.</p> <p>13. PAINTED LETTERS, 8 cents per upright inch per letter.</p> | 15 amp., single pole, Indoor | \$20.00 | 15 amp., single pole, Outdoor | 25.00 | 30 amp., double pole, Indoor | 25.00 | 30 amp., double pole, Outdoor | 30.00 | One-half cap for S-14 lamps | 25 cents | Full cap for S-14 lamps | 30 cents | One-half cap for A-19 lamps | 40 cents | Full cap for A-19 lamps | 50 cents |
|--|-------------|-------------|-------------|------------|-----------|---------|-------------|---------|------------------------|---------|---------------|---------|------------|---------|------------------------|---------|-------------|---------|---|--------------|-------------|------------------------------|----------|--------------------------|----------|--|----------|--|----------|---|----------|--|----------|--|----------|--|----------|---------------------------|----------|-----------------------------|----------|--|----------|---|----------|--|----------|---|----------|--|------------------------------|---------|-------------------------------|-------|------------------------------|-------|-------------------------------|-------|-----------------------------|----------|-------------------------|----------|-----------------------------|----------|-------------------------|----------|
| Large chain | 10c per ft. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Small chain | 8c per ft. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wall ells | 30c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wall plates | 15c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-in. lugs and shields | 30c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Through bolts | 50c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cold shuts | 10c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-in. by 4-in. washers | 30c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Turnbuckles | 50c ea. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type of Sign | Per sq. ft. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Raised or flush glass letter | 20 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bevel channel, gold leaf | 45 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Raised or flush glass with single row border | 40 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Channel opal letter with single row border | 50 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bevel channel, gold leaf with single row border | 65 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Raised or flush glass with double row border | 50 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Channel opal letter with double row border | 60 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bevel channel, gold leaf double row border | 75 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed flush lamp letter | 40 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed channel lamp letter | 50 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed flush lamp letter with single row border | 60 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed channel lamp letter with single row | 70 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed flush lamp letter with double row border | 70 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exposed channel lamp letter with double row | 80 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 amp., single pole, Indoor | \$20.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 amp., single pole, Outdoor | 25.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 amp., double pole, Indoor | 25.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 amp., double pole, Outdoor | 30.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| One-half cap for S-14 lamps | 25 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Full cap for S-14 lamps | 30 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| One-half cap for A-19 lamps | 40 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Full cap for A-19 lamps | 50 cents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SIGN MAINTENANCE CONTRACT

This contract, entered into by and between the GUARANTEE ELECTRIC CONSTRUCTION COMPANY of Battle Creek, Michigan, (hereinafter called the Party of the First Part) and _____ of the same place (hereinafter called the Party of the Second Part), hereby gives the Party of the First Part the authority to inspect, repair and maintain the Electric Signs for the Party of the Second Part. It being understood that the Party of the First Part shall make regular inspections not less than once every fifteen days, for which there will be no charge unless actual labor is performed or lamps installed.

It being understood the Party of the First Part has the authority to relamp said sign without additional authorization, the lamps to be billed at the current manufacturers list price or at the discount price if purchased from the Party of the First Part under lamp contract.

The lamp renewal labor charge is to be twenty cents for the first lamp, fifteen cents for each additional lamp up to and including ten (10) lamps and ten cents for each lamp additional plus twenty-five cents, if we install lamps supplied by others.

In the event the sign is in need of repairs other than lamps the matter shall be taken up with the Party of the Second Part before proceeding. This work consisting of washing, painting, varnishing, supplying new chain, moving or connecting as well as repairing flasher.

Prices for the above work may be obtained from the Company's office in accordance with the schedule of prices prevailing.

Billing for sign relamping and repairing shall be made on the day following the work and are payable within thirty (30) days at the Company's office, Battle Creek, Michigan.

This contract remains in force for one year (1) from date as first above written and is subject to cancellation by either party upon ten (10) days written notice.

ACCEPTED

Per _____

SIGNED

Per _____

CONTRACT FORM

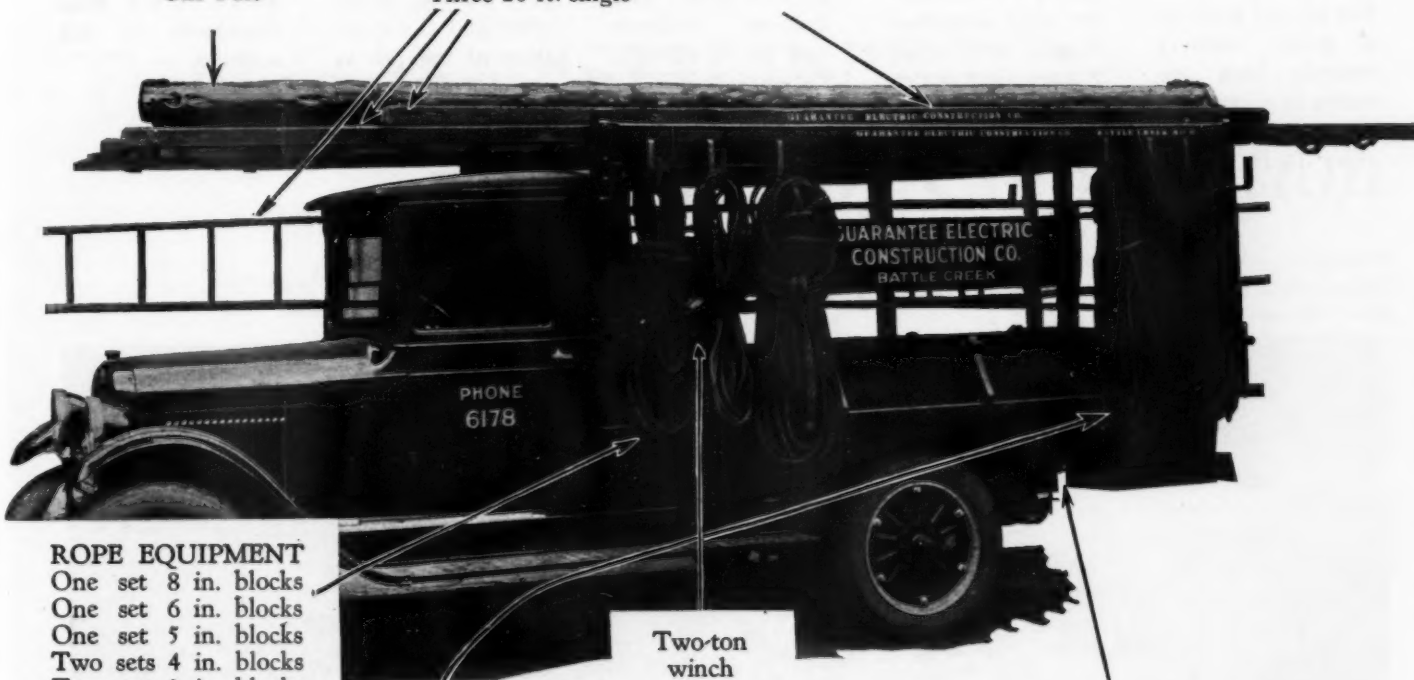
Gives customer free inspection service and gives contractor right to make all repairs authorized by customer.

Enterprise

LADDER EQUIPMENT

One 3-section 60 ft. extension
Two 2-section 40 ft. extension
Three 20 ft. single

Gin Pole



ROPE EQUIPMENT

One set 8 in. blocks
One set 6 in. blocks
One set 5 in. blocks
Two sets 4 in. blocks
Two sets 3 in. blocks
Each equipped with 250 ft. of line ranging from 1/2 in. to 1 in.
Four 1-in. lines for guying gin pole. Many short strings and ropes with three switch blocks for convenience in adjusting pulls on the line.

Two-ton winch

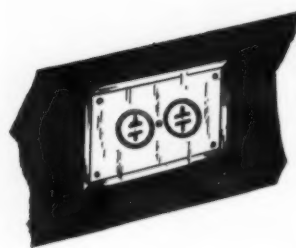
Base members for gin pole carried under bed of truck and can be raised to height of 20 ft. on the bed by one man.

Specially Equipped Truck

All details have been provided for so that four men can easily handle a one-ton sign.

How Many Convenience Outlets

Should a Living Room Have ?



This question was asked of 91 contractors, 37 [or 40%] replied as follows:

10
Contractors
gave the number of
feet of wall space as
a guide, answers
ranging from one
outlet to every 8 ft.
to one outlet to
every 15 ft.

15
Contractors
gave a definite num-
ber as a minimum.
2 gave two outlets
7 gave four outlets
2 gave five outlets
3 gave six outlets
1 gave twelve.

6
Contractors
gave a range, with
four as a minimum
and six to eight as
a maximum.

5
Contractors
gave the size of the
room and the char-
acter of the job as
the controlling fac-
tors.

1
Contractor
gave Red Seal
Standards as his
answer.

But After All . . .



The answer is not to be found in any rule of thumb. We first must know *what living room.*

ENOUGH convenience outlets should be installed in every living room to permit every part of the room to be used for whatever purpose the owner desires without having a lot of cords strung about. The public is not interested in the number of outlets. It is interested

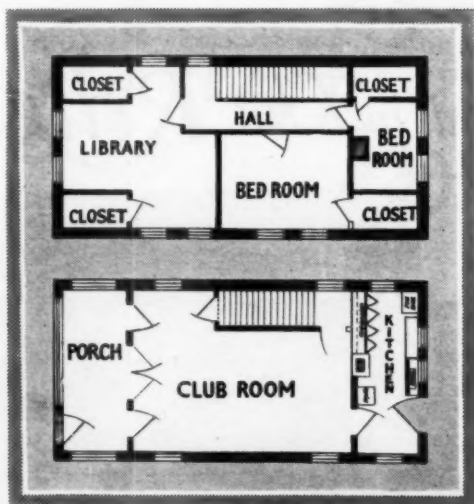
only in the comfort and livability that electric service brings, the maximum enjoyment of which is possible only when the wiring layout is designed intelligently and not by rule of thumb.

THE Kilowatt
Club with E.
J. Vetter and L. W.
Burch in the fore-
ground.



Taking the "SHUN" Out of Competition

*Layout of first and sec-
ond floors.*



*Looking over Lake Monona
from the front porch.*

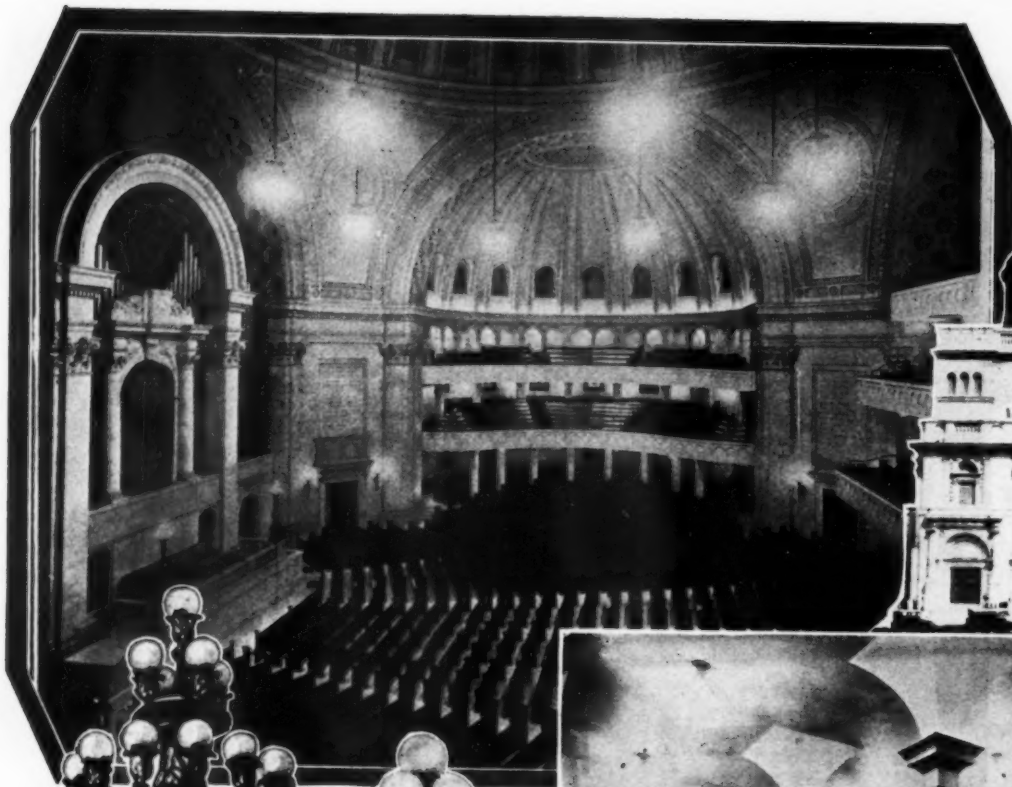


ACROSS Lake Monona facing the capital city of Wisconsin is an experiment in human nature. And it is a successful experiment for it is proving that men who play together will work together as competitors.

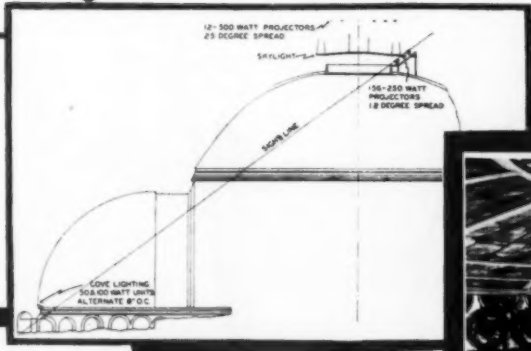
Distrust is at the bottom of many of the troubles of the electrical contractor. Local programs for improved conditions frequently fail to hit the mark because the contractors are not willing to trust each other. So deep is this distrust in some cases that it seems almost a hopeless task to get them together.

The Madison electrical contractors have proved that when this distrust can be replaced by the confidence born of friendship men can and will work together. Their experiment—it is no longer such to them—has been going on for two years in

(Continued on page 70)

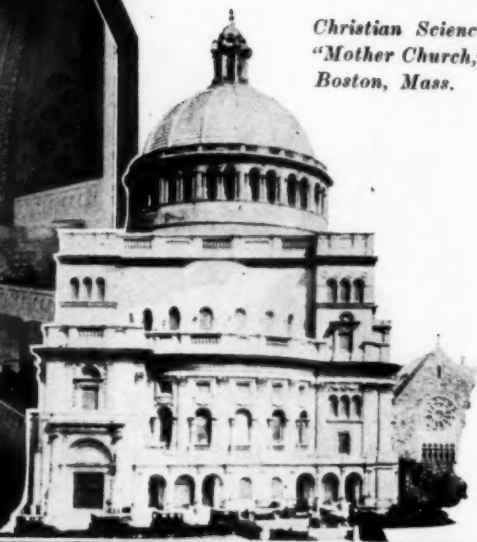


Bright-
ness of bare
lamps re-
duced by
new tops
shown on
opposite
page.



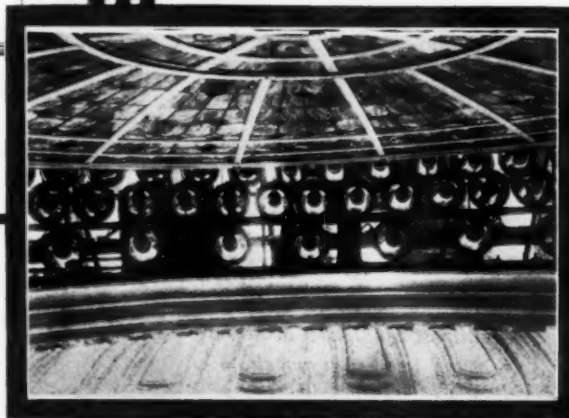
The three banks of 250-watt projectors, 156 in all, as seen on the right are behind the sight line as shown in the layout diagram. With each unit having a 12 deg. beam, every point on the dome, under full illumination will receive light from at least five reflectors.

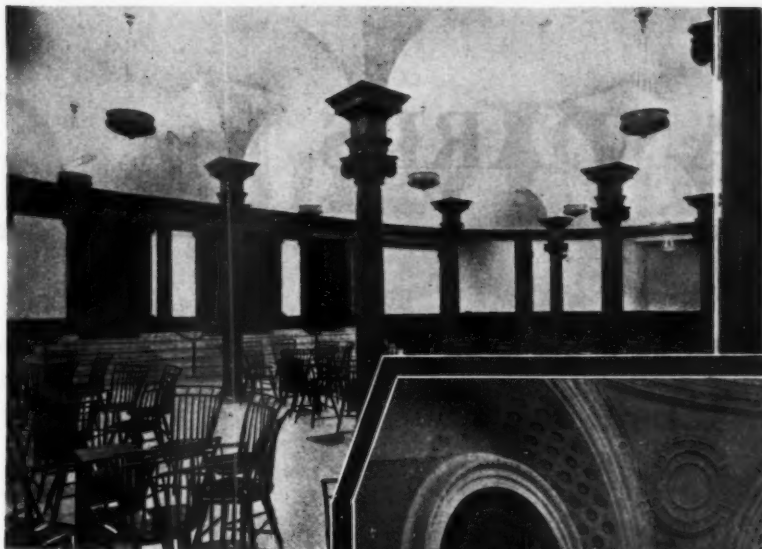
*Christian Science
"Mother Church,"
Boston, Mass.*



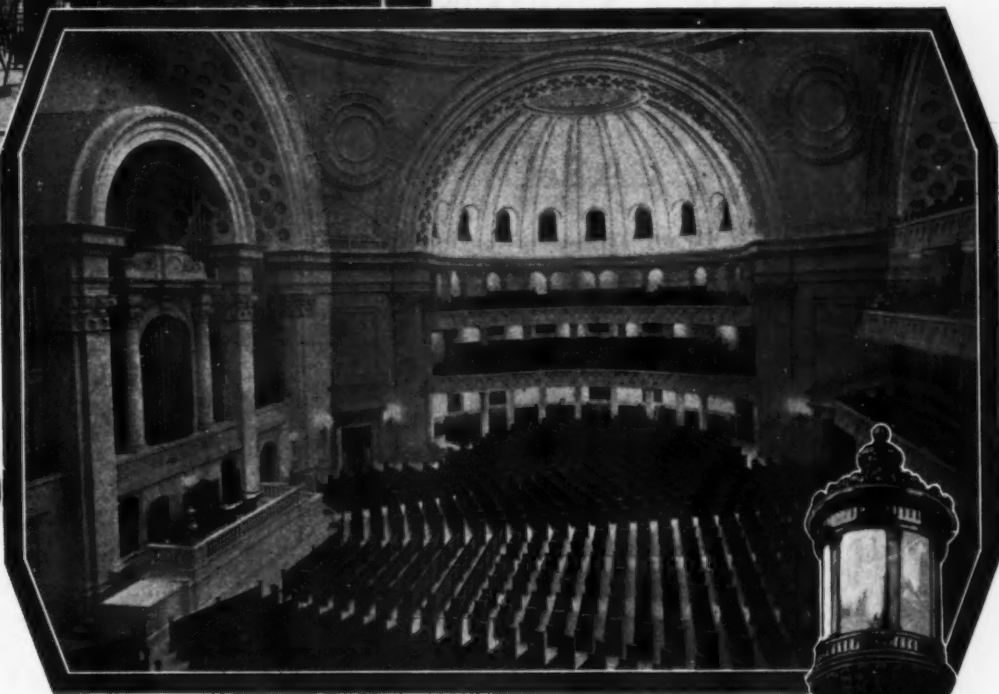
Twenty-two years ago this original lighting was installed. The auditorium (upper left) seating 5000 people and a height of 108 ft. used eight massive bronze chandeliers each containing seventy-three 32-cp. lamps. The Sunday school (above) was lighted by bare 5-lamp ceiling clusters.

New Principle Employed in The Relighting of



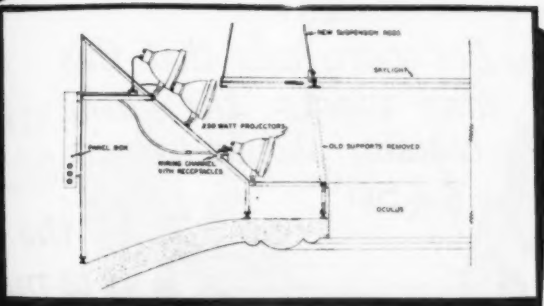
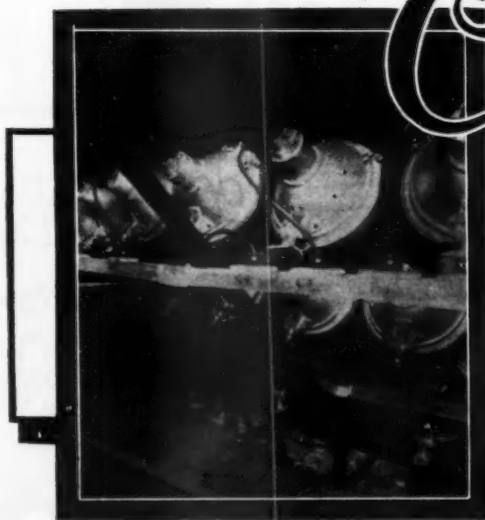


Glare and brightness were removed and a better distribution and higher intensity secured in Sunday school rooms with totally indirect mirrored glass reflectors, 14 with two 100-watt lamps and 16 with one 200-watt lamp.



IN the Auditorium chandeliers were replaced by a new principle known as reversed cove lighting. Instead of the light being reflected up from a cove and then reflected down to the floor it is reflected on to the dome from above by floodlights and then down to floor giving flexibility of lighting, low cost of installation and extreme ease of maintenance. Lower illustrations on both pages show how it was done.

ing of a LARGE CHURCH



Projector bank from the rear showing wiring raceways and method of mounting.

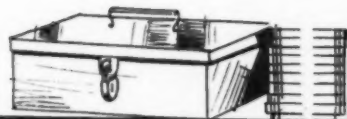


Photographs furnished through courtesy of Curtia Lighting, Inc.

Suggested STANDARDS for City

ASSETS (Working Capital) \$100. Basis

CASH



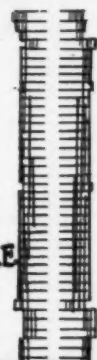
\$10.00

ACCOUNTS NOTES



\$20.00

and RECEIVABLE



\$40.00



Owned by Others

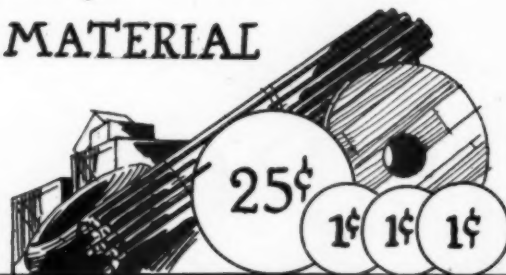
LIABILITIES \$100. Basis



Out of \$10.00

Every \$1.00 of Sales

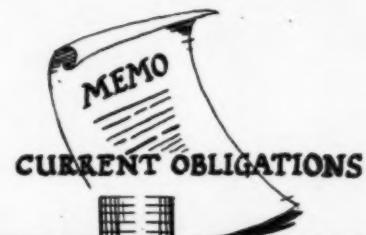
MATERIAL



28¢



\$10.00



\$5.00

LONG TERM DEBT



\$10.00

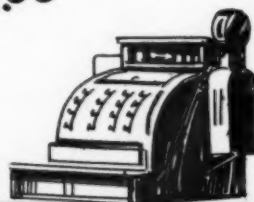
LABOR



35¢



For every hour that this man works the cash register should take in \$4.50



If the contractor is to make a profit of 7%

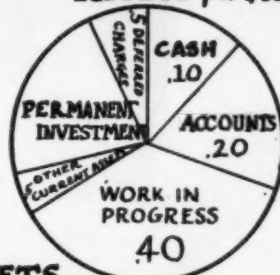
Of this the Jobber gets \$1.26



Contracting Business

Charted from data compiled by
and suggested for the Electrical
Contractors Association of
Pittsburgh, Pa.

ASSETS per \$100

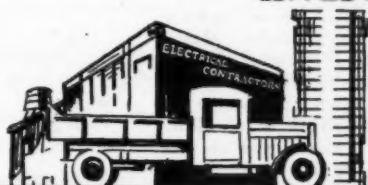


PERMANENT INVESTMENT

OTHER CURRENT ASSETS



\$5.00



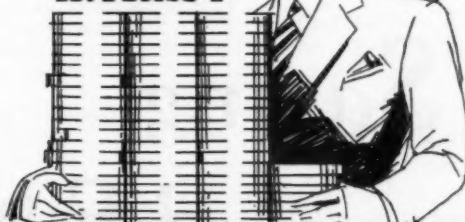
OTHER ASSETS AND DEFERRED CHARGES



\$5.00

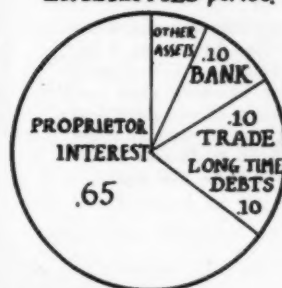
Owned by Contractor

PROPRIETOR'S INTEREST



\$65.00

LIABILITIES per \$100



THE SALES DOLLAR



OVERHEAD



30¢

PROFIT



7¢

REVENUE



TO LABOR \$1.58

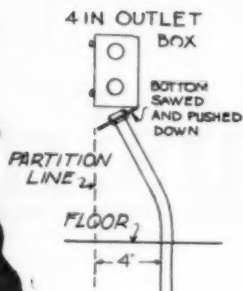


TO OVERHEAD \$1.35



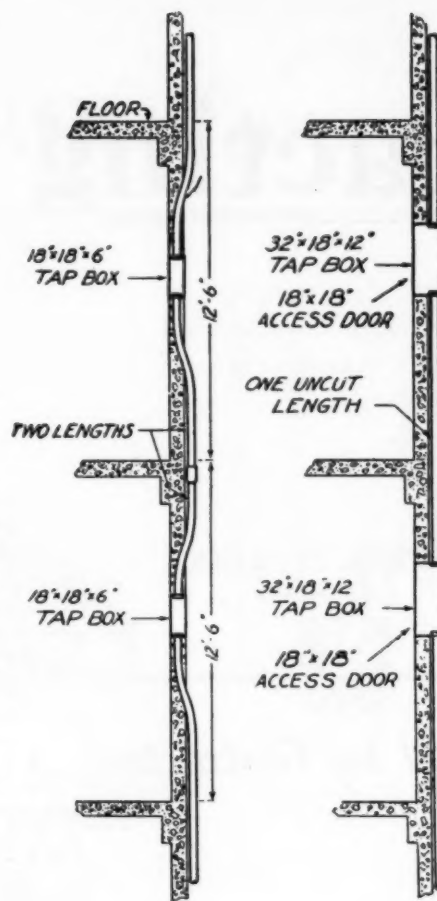
TO OWNER .31¢



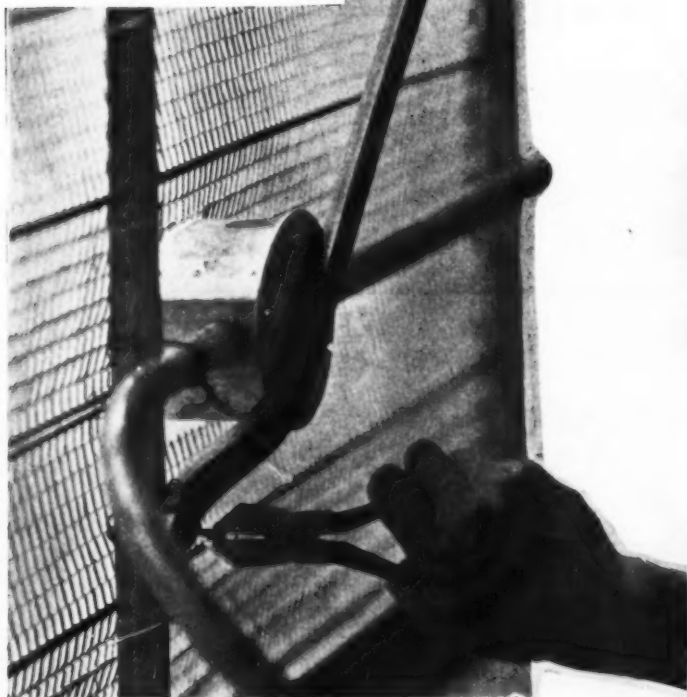


Pipe coming up through the floor missed partition line by about 4 in. Belzhoover Electric Co., Cincinnati, avoided offsets by bending pipe until end was directly over partition line, then sawing one of earless sides of outlet box at both ends and pushing it back until it took the pipe.

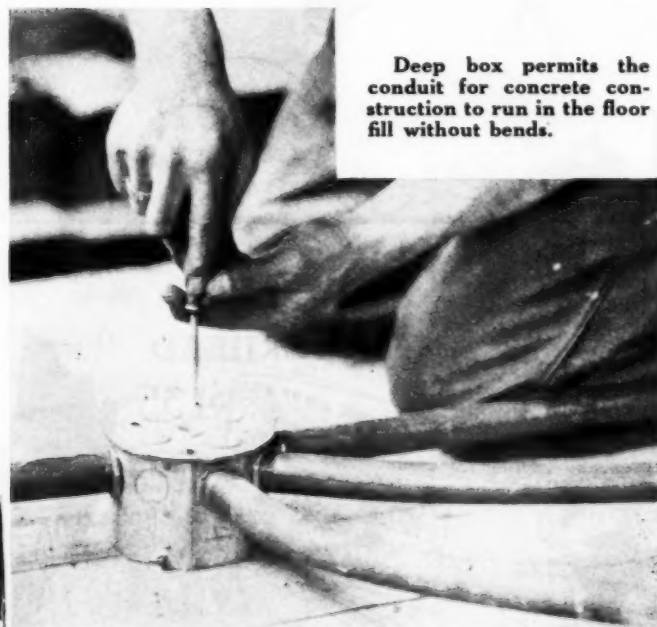
Instead of the customary 18" x 18" x 6" tap boxes, 32" x 18" x 12" boxes were used, thereby eliminating offsets. Incidentally the distance between boxes was one length of conduit. Also there was no necessity for temporary shores to support the work prior to building partitions.



Deep boxes on steel and metal lath construction are long enough to permit the conduit to run on top of the small supports without bending at the outlet.



Saving BENDS with BOXES



Deep box permits the conduit for concrete construction to run in the floor fill without bends.

Code Chats

A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the National Electrical Code

Conducted by F. N. M. SQUIRES

Assistant Chief Inspector, N. Y. Board of Fire Underwriters

Clearances for Service Cables

Rules 402-d and 403-c are still causing some confusion over the seeming conflict of the requirement for a separation of 6 inches in one case and 2 inches in the other in the use of multiple conductor service cables.

Some time ago the interpretation committee of the N. F. P. A. Electrical Committee released the following:

Question: Shall the phrase "from adjacent woodwork" in paragraph c of Section 403 (1925 Code) be construed as applying only when the wires run parallel to woodwork?

Finding: The phrase should be construed as requiring that multiple conductor service cables shall be kept at least 6 inches from the nearest woodwork, unless approved fittings which afford equivalent protection are used.

It will be noted that Section 403-c of the 1925 edition of the Code appeared under the general heading "On Exterior of Building" whereas in the 1928 edition it appears in Section 402-d under the heading "Over-head, From Main to Building." This change in location was made to clear up the point in question.

Fuse Protection at Services

Rule 405-g (1928) reads as follows:

When the service fuses are locked or sealed or are located at the outer end of the service conduit, branch fuses connected on load side of meter shall be accessible to persons concerned and shall be enclosed in an approved casing or cabinet. If the installation consists of a single branch circuit, fuses shall be inserted in series with the service fuses and shall be of smaller capacity. These fuses need not be at the meter but shall be accessible.

The first sentence is very clear and requires a customer's fuse to be installed. It has been hard at times to make some contractors understand that the service and meter fuses do not give adequate protection to the installation.

The second sentence, however, is less clear. Does it refer to the entire installation in a building as consisting of a single branch circuit of either one 2-wire or one 3-wire circuit and therefore refer to a single house with a single circuit? Or does it include a multi-family house or an office building where only one circuit is run from each meter?

The first thought seems to be the literal interpretation. But the last sentence—the shortest one of the paragraph—leaves us up in the air. It says that the fuses need not be at the meter but does not give any clue as to where they shall be. So for this information we must look over the rules for automatic overload protection and

find in rule 805-a that, in general, fuses shall be provided and "so located as to protect each ungrounded conductor."

Then we recall the 1925 Code rule 805-c which required that a fuse (or circuit breaker) be placed at every point where a change (reduction) is made in the size of an ungrounded wire. We look for that in the 1928 Code and find the old intent there but in a new wording under 805-d wherein it requires the protective device (fuse) to be "located at the point where the conductor receives its supply."

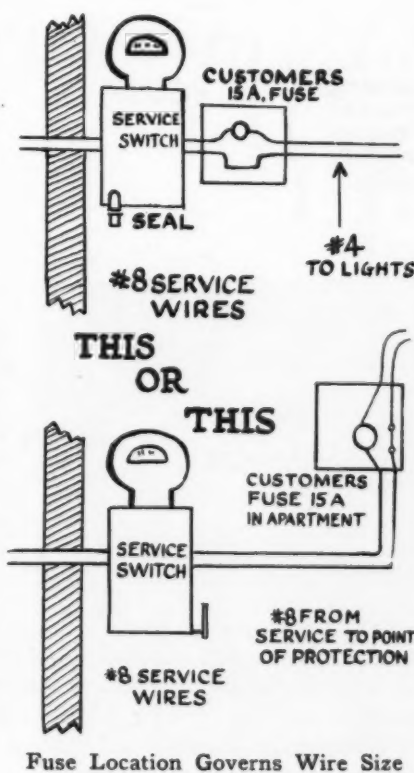
In view of the above references, it would seem, then, that a customer's cut-out is required on the load side of the meter but, if the same size wire as is used for the service is continued through and beyond the meter, that this customer's fuse could be located at any accessible location to which this size of wire (No. 8 or larger) is run.

* * *

Overload Relay Calibration

A point that should be investigated in motor installations is the setting of the overload relays in the starting device. The relays should be set to open the circuit at not higher than 125 per cent of the motor rating, that is 25 per cent overload. See rule 808 (a).

Now the question is, how is the calibration of the relays to be determined? Some of them are rated directly in amperes, others are rated in per cent overload. When the latter rating is applied, care should be taken to see that the starter bears the same horsepower or current rating as the motor. In some cases it is necessary to take off the entire dash pot to see how the relay is calibrated. There



are lines on the plunger arm that corresponds with a rating schedule on the face of the relay. Screwing the dash pot up or down sets the relay. Other relays are calibrated so that the ampere rating may be read without moving the dash pot, and some starters now on the market have thirty or more overload ratings brought about by changing the connections in the starter case, none of which are rated. How are inspectors to know what current the relay will work at? This starter happens to be in the hands of the Underwriters' Laboratories, Inc., at present, so the manufacturer states, and let us hope that the Laboratories insist on the marking of all of the taps in the case, so that contractors and inspectors will know what they are doing. We are not particularly interested in the time element, so long as the device will operate in a reasonable amount of time. The time element may be a feature for Article 8, committee to consider.

Geo. Welman

* * *

Grounding Service in Garage

In some suburban territories peculiar service and grounding conditions are often met with. For instance, it is desired to have the service enter the premises in an out building, such as a

For this a scheme has been worked out which so far has given satisfactory results and proves to be better than relying only on driven grounds. In the particular territory where this was developed, artificial grounds had failed several times and in some cases fire had resulted.

By referring to the accompanying sketch, it will be seen that the grounded (identified neutral) service conductor is bonded to the conduit which runs underground to the dwelling. This, in most cases, will prove as efficient as a driven ground. Then in the dwelling this same identified grounded neutral is bonded again to the conduit and grounded to the water pipe on the street side of the main valve.

It will be noticed that the grounded wire is grounded at all times, regardless of whether the main service switch and the house switch are open or not. There is one possible objection to this. In case the meter and customer's fuses are located in the garage the conductors between the garage and the house may be smaller than the service run and may in some cases be smaller than the required size for a ground wire. However, this wire is reinforced by the carrying capacity of the conduit and the ground

providing driven grounds in addition to this method if desired or obtainable.

* * *

Auto Transformer Starters

At one time, starters for squirrel cage motors were practically all based on the auto transformer (reduced voltage) principle. The National Electrical Code did not, at that time, require auto transformers to be mounted 1 ft. from woodwork or separated therefrom by a slab of some approved heat insulating material, and the Code does not require it now. The Code does, however, require resistance devices to be mounted 1 ft. from combustible material or separated therefrom by a slab at least $\frac{1}{2}$ in. thick of heat insulating material. Even the bolts that secure the resistance to the insulating material shall be countersunk, and the holes filled so that they will not come in contact with the woodwork.

*

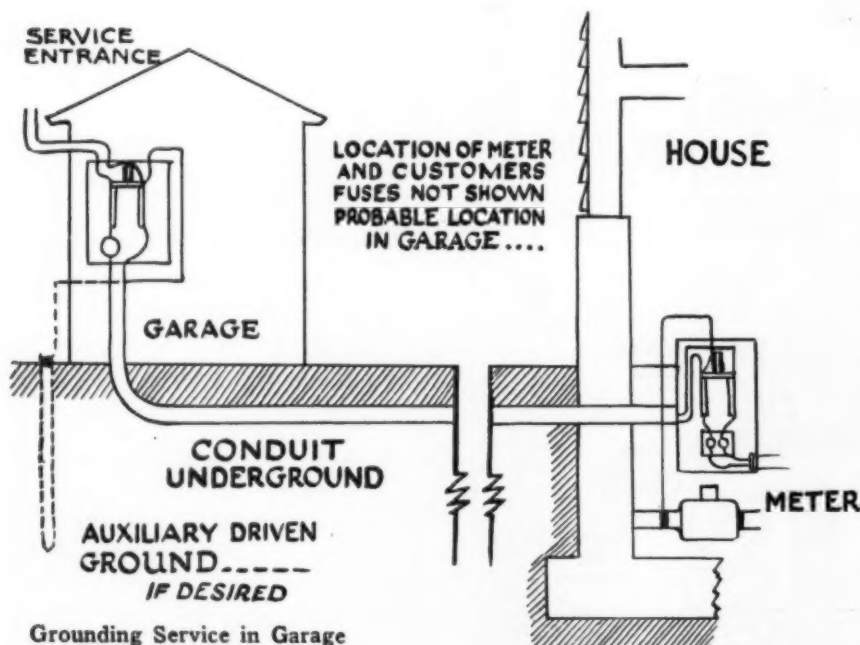
Resistance or current limiting type of squirrel cage motor starters are being used more than heretofore. Some have carbon for the resistance element and some have wire of relatively high resistance. Both types are mounted in sheet steel cabinets and look like auto starters, but they are not auto starters. They get quite hot during the starting period, at least the back of the enclosing case gets too hot to touch.

Resistors, reactors and capacitors (static condensers) are treated under one heading 1702 (a) which says:

Resistance devices shall be placed on a switchboard, or at a distance of at least 1 ft. from combustible material or shall be separated therefrom by a slab or panel of non-combustible non-absorptive material, such as slate, soapstone or marble. This slab shall be somewhat larger in area than the resistance device and shall be secured in position by its own supports which shall be independent of those fastening the resistance device to the slab. Bolts which support the resistance device shall be countersunk at least $\frac{1}{8}$ in. below the rear surface of the slab and shall be covered with insulating material. The slab shall have a thickness proportioned to the size and weight of the resistance device, in order to provide proper mechanical strength and this thickness shall be not less than $\frac{1}{2}$ in.

There we have it. Compare 1702 (a) with 1005, (1928) or 1004 (1925). One is considered a source of heat and the other is not so considered.

Geo. Welman



garage, where no water pipes are available for grounding. The wires are thence carried to the dwelling through underground conduit.

connection is further strengthened by the conduit being buried in the ground.

Of course, no objection is made to



EACH bin has a metal flag painted black on one side and white on other. On black side is painted minimum number of articles that should be in stock. When wireman taking out material notices remaining stock is at or below minimum he flips flag to white side on which is painted number of item to be ordered. Every morning proprietor or foreman spots white flags and orders accordingly. This method is used by Cannon Electric Co., of Louisville, Ky., which finds it so automatic as to require no stock room clerk.

No CLERK

Necessary to Maintain

This STOCK

WHEN the number of single-pole snap switches in the bin on the left went below the minimum number as stamped on the black side, the flag was turned to white side showing that ten more should be ordered right away. The fact that the bin on the right has its flag on black shows that it has enough 3-way snap switches. Note flags are pivoted on sawed off nails, held in place by staples. Large head nails hold flags in place.



In Estimating Branch Circuits in House Wiring

Remember--

There are **9**
Different Kinds
of **OUTLETS**

By A. L. ABBOTT
Formerly Technical Director, A. E. I.

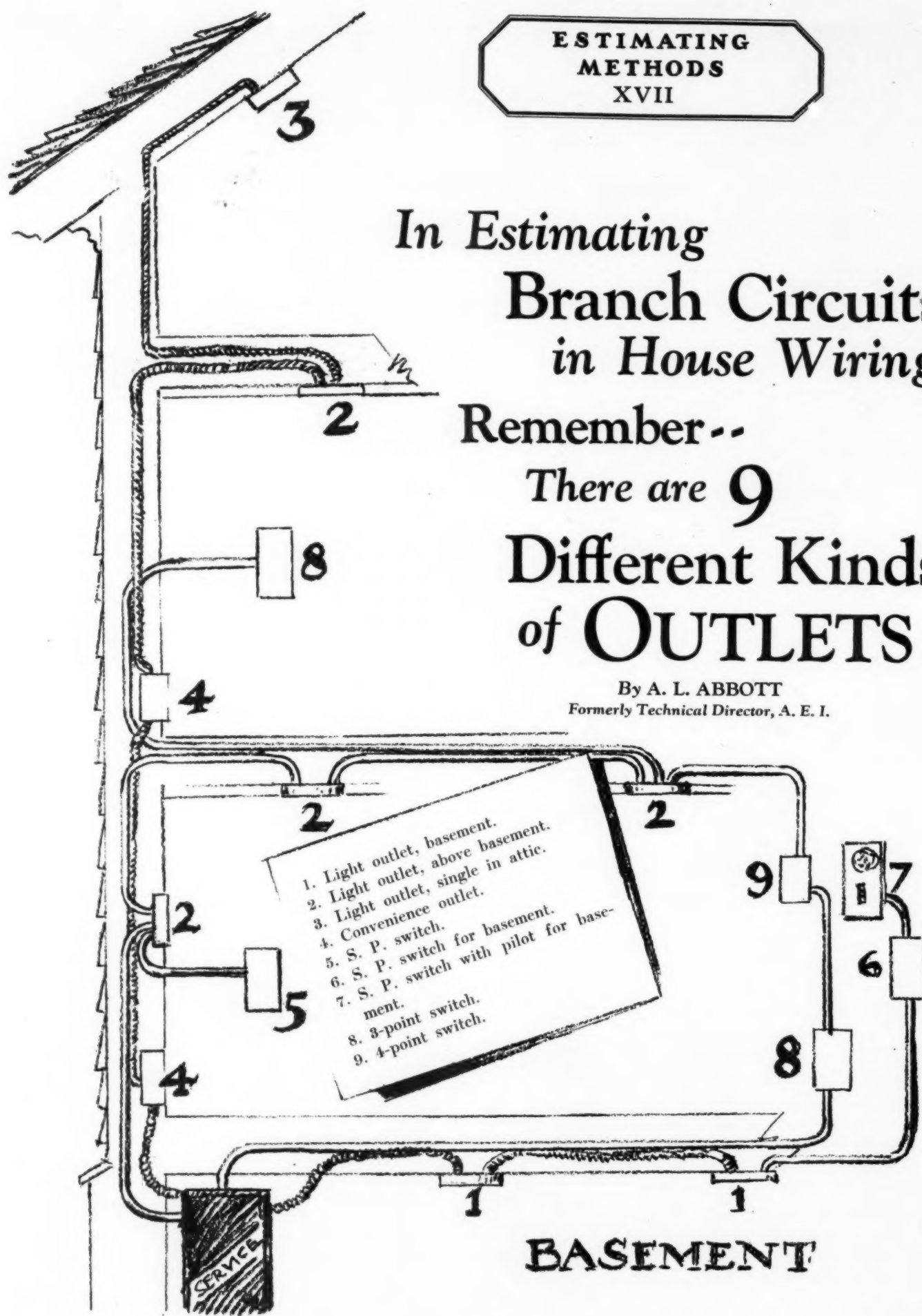


TABLE 26—KNOB AND TUBE COSTS

	Through-out	With Rigid Conduit in Basement
Ceiling and Bracket Outlets:		
In Basement	1.03	1.45
Above Basement	1.32	1.20
One Only in Attic	1.50	1.42
Convenience Outlet	1.66	1.54
S. P. Switch	1.61	1.56
S. P. Switch for Basement		2.94
S. P. Switch with Pilot for Basement	4.94	6.22
3-Point Switch	1.87	1.87
4-Point Switch	3.08	3.08
Additional Cost per Circuit		3.29

TABLE 27—ARMORED CABLE COSTS

	Through-out	With Rigid Conduit in Basement
Ceiling and Bracket Outlets:		
In Basement	1.00	1.45
Above Basement	1.25	1.11
One Only in Attic	1.57	1.46
Convenience Outlet	1.51	1.37
S. P. Switch	1.45	1.40
S. P. Switch for Basement		2.86
S. P. Switch with Pilot for Basement	4.97	6.12
3-Point Switch	1.82	1.82
4-Point Switch	3.03	3.03
Additional Cost per Circuit		3.29

TABLE 28—RIGID AND FLEXIBLE CONDUIT COSTS

Ceiling Outlet:	
Basement	1.48
1st Floor	2.06
2nd Floor	2.27
One Only in Attic	3.41
Finished 3rd Floor	2.45
Bracket Outlet:	
1st Floor	2.26
2nd Floor	2.53
3rd Floor	2.66
Convenience Outlet	
Basement	2.57
1st or 2nd Floor	2.34
3rd Floor	2.89
S. P. Switch	
In Basement	2.49
On 1st Floor for Basement	2.97
With Pilot for Basement	6.10
1st, 2nd or 3rd Floor	2.50
3-Point Switch	2.98
4-Point Switch	4.47

TABLE 29—BELL WORK

Single Bell or Buzzer and Push Button

Item	Unit Cost	Quantity	Cost
Bell or Buzzer.		1	
Push Button...		1	
Transformer ..		1	
Wire		70'	
Miscellaneous			
Labor—hours		1.25	
Total Cost...			

Additional Bell or Buzzer and Push Button

Item	Unit Cost	Quantity	Cost
Bell or Buzzer.		1	
Push Button...		1	
Wire		35'	
Miscellaneous			
Labor—hours		0.5	
Total Cost...			

SOME of the old-time house wiring experts held to the belief that no circuit ought to feed outlets on more than one floor. This seemed to be the orderly and systematic way to do the job, and it did make trouble-shooting a little easier. Modern competition has wiped out this old tradition. The approved method nowadays is to group on one circuit those outlets which can be connected together with the greatest economy of labor and material. The result is that in most cases each circuit carries some outlets on the first floor and some on the second floor. This is a positive advantage in the completed installation, because the blowing of a fuse will not leave a whole section of the house without light.

With any of the more common wiring methods—knob and tube, non-metallic sheathed cable, armored cable, or flexible conduit—the local rules in some cities require rigid conduit for all exposed work in the basement. Where this requirement is in effect it may be interpreted in actual practice in either one of two ways.

First, the wireman may be allowed to run two or three feet of the less expensive type of wiring to connect to a basement outlet or to the cutout box. In this case he usually bends all his energy to avoiding the use of conduit so far as possible, and very little is used, sometimes none at all.

Second, the rules may require all home runs to leave the cutout box in conduit and permit none of the other type of wiring in the basement except vertical drops from the floor above to outlet boxes or junction boxes on the under edge of joists. Under this condition one or more runs of conduit which might be described as trunk lines are carried across the basement ceiling and pass through junction boxes from which the circuits rise to outlets on the first floor. The main runs pass through some of the basement outlets and other outlets are picked up by short T-branches from the trunks.

Thus for any type of wiring, except all rigid conduit, we have three possible methods. Taking knob and tube as an example:

1. All wiring may be knob and tube;
2. Rigid conduit may be required in the basement, under the first conditions stated above;
3. The second condition stated may obtain, i. e. the basement work is actually all rigid conduit.

Method 2 will always require the greatest total length of conductor. Methods 1 and 3 result in layouts which closely approach standards and lend themselves more readily than does Method 2 to accurate estimating of the labor and material. In the data to be presented here,

(Continued on page 66)

Electrical Contracting

With Which Is Incorporated The Electragist

S. B. WILLIAMS
Editor

The Dangerous Amateur

IT is not the new work so much that is dangerous. It is the additional work done by the amateur without inspection that is causing a large part of the huge fire waste laid to the door of electricity.

One inspection bureau reported among its September fires the following:

Short circuit in home-made seven-lamp series ornamental flower basket. Loss, \$500.00.

Short circuit in wide parallel cord tacked around two rooms. Loss, \$25.00.

Short circuit in narrow parallel cord stapled around three sides of room. Loss, \$50.00.

Multiply this by twelve and we begin to see why reinspection will pay its way.

Bid by Preference

MANY a contractor has an idea that he is the favored child in certain architects' and general contractors' offices and that they prefer to have him do all their electrical work. And they do—it's a fact.

Strangely enough, however, these same architects and general contractors, whenever they have a job to do, always ask for bids. Now would it not seem reasonable, if they truly preferred to have a certain electrical contractor do all their work, to let him have the work without going through all the motions of bid letting?

As a matter of fact, does it not boil down in almost every case to this—the preferred electrical contractor is given the opportunity to take the job at less than the lowest bidder?

If any of us could find someone who would sell us any of our necessities below what anybody else will sell them, wouldn't we give him the preference of selling us whenever we wanted to buy? That is all the architects and general contractors are doing. They send out for bids just to find out the lowest price they can get the work done for in the open market and then they offer the job to a preferred contractor who will do it for less.

If contractors would take less note of the architects' and general contractors' blarney and make a greater effort to know their own costs, they would

soon find that being "preferred" is just another way of being "suckers."

Only philanthropists can afford to take bids by preference.

Fuse Improvements

DISTINGUISHING colors for sizes is the latest idea in fuses. This is a step in the right direction. It of course will not prevent the public from using a larger fuse than is proper but, being obvious, may in a way act as a deterrent.

Color of course has a fine merchandising value and will be welcomed by the dealer. But the point that appeals to us is the ability of one to quickly distinguish size and tell at a glance whether or not a size too large is being used. With the new fuses it will be simple for meter men and inspectors to keep down over-fusing.

So far we have noticed only one manufacturer using this idea. Couldn't it be adopted by all so that the colors for the different sizes could be standardized?

Advocating Larger Branch Circuits

THE National Electrical Code does not say how large a conductor shall be used for branch circuits, but how small. And the size is determined not by the effectiveness or efficiency of the equipment to be used, but by the fire hazard.

The minimum size which the Code will permit for branch circuits is No. 14. It makes no difference if the run is 15 ft. or 315 ft., a No. 14 conductor will pass inspection provided it is not overloaded. But it does make a difference to the customer.

The drop in voltage means a very serious loss in light—a loss that increases much faster than the voltage drops. The light that is lost must be made up by using larger lamps and thereby making the circuit just so much more inefficient. Besides, the heat losses in the circuit are multiplied. These losses come out of the customer's pocket every month.

A serious drop in voltage causes heating devices

to come up to heat more slowly. Many a toaster or waffle iron has been put on the shelf as being too slow when all that was needed was better voltage.

A larger size of branch circuit conductor will cost but little more to install and the customer will get better service and in the course of a year to eighteen months will have saved in light bills enough to take care of the increased wiring cost.

Being an Estimator

AN estimator deals largely with the human equation. It does not, as a rule, require very much intelligence to take off materials but to estimate the probable output of human labor is something that is not so sure, not so definite.

A truly successful estimator is concerned with the success of his estimate after the building contract has been secured. No contractor wants an estimator whose estimates are so high that the contractor is entirely left out of the competition, nor does he want an estimator whose figures are so uncertain that it is difficult to tell beforehand whether to be glad or sorry when a bid has been accepted.

It is a matter of good business, therefore, that a very close relationship exist between the estimator and the superintendent and the purchasing department. All good estimators can estimate productive labor very closely. The difficulty is that a varying amount of labor on every job is non-productive. Isn't the estimator, therefore, deeply interested in the control of non-productive labor? Now the job of controlling non-productive labor is the job of the superintendent. He isn't there to control productive labor, he is there to control non-productive labor by keeping it at the minimum, in other words, promoting efficiency. If the non-productive labor runs high, the superintendent, if the estimator isn't on the job, may quite naturally take refuge in saying that the estimator made a mistake in figuring the labor and did not take conditions into consideration.

Much of the non-productive labor on a job, however, is due to the careless and inefficient methods employed in purchasing and scheduling of deliveries of materials. The office force, of course, always has an alibi ready by saying that it had no schedule made out for it.

If an estimator will work closely and harmoniously with his superintendent and his purchasing department, he will soon find that his outfit has achieved a certain efficiency of job management which will enable him to estimate much more closely. He will find that his company is getting more and more work at what seems like starvation prices to others but which are very profitable.

Locals and Nationals

MANY people have asked what the new scale of dues for membership in the Association of Electragists means in association effort. Dues for some years have been graduated from \$15.00 a year upward. Starting January 1, 1929, all dues will be \$15.00.

Obviously this means less revenue for the association unless there is a compensating increase in membership. The membership is too small and it was in order to make it more nearly representative of the industry that the dues were reduced to the minimum and announced in conjunction with the local chapter plan.

For those who may not have fully understood the purpose of local and national associations a word of explanation follows:

A contractor is a local business man. His wiring rules, his competition, almost all of his problems are local. The only association that can do anything for him of a concrete and tangible nature is his local association. For his immediate business well-being and protection it is essential, therefore, that he join his local association.

Just as there is local work the national association cannot do, so there is national work that the local cannot do.

The contractor's interest must be looked out for in the regular revisions of the National Electrical Code. Somebody must represent him at the Industry Sales Conference, in deliberations with the national associations representing the power companies, the manufacturers and the jobbers. Somebody must be able to handle the general problems with the government, with the architects' body and that representing the general contractors.

There must be somebody who is helping the local contractors to organize, some place where local secretaries can secure guidance, help and inspiration. There must be some agency to pass on the successful results of one local to another.

The national body, in other words, is a national contact body and an organizer. It coordinates the contractors' problems and tries to secure some tested answer to the problems, which can be passed down to the locals.

Without the national there would be few locals and those would be impotent because of lack of national guidance.

The dual setup of a national and a local chapter is ideal. The plan has been tested out for a few months and is working. A number of new chapters of the A.E.I. have already been added and many more are being formed.

The real voice in the direction of the work of the national will come from the representatives of the locals who go to the annual convention.

A. E. I.

News and Service Information

New Headquarters

Early in December, the headquarters of the Association of Electragists, International, will be transferred from the present location at 15 West 37th Street, New York City, to 631-632 Graybar Building, 420 Lexington Avenue, New York City. The change was considered for many months by the Executive Committee, and was recently approved in view of the distinct advantages to be enjoyed in the new location.

The Graybar Building is situated in the business heart of upper Manhattan, adjacent to the Grand Central Terminal. Here are also located the general offices of the Society for Electrical Development, of the National Electrical Manufacturers Association, National Electric Light Association and the Artistic Lighting Equipment Association.

* * *

Uniform Dues January 1

Effective January 1, 1929, annual membership dues in the A.E.I. will be levied at the uniform rate of \$15.00 per member. The classification of members according to volume of business during the previous year, and the corresponding variable scale of membership dues, will be discontinued. This change will effect a decrease of dues payable by all members except those previously reporting in Class A.

This change, authorized by an amendment to the By-Laws at the 1928 Convention, was proposed and advocated as the logical step in keeping with the association's evolution as a representative policy body. More now than ever before does the A. E. I. exercise its function as a true trade association concerning itself chiefly with group trade relationships both within the electrical industry and with other industry groups; and maintaining contacts with national representative bodies in general when it is clear that the broad interests of the membership may thus be served.

The uniform dues rate has been determined as the present minimum consistent with budget requirements for the year's program, based upon the

present membership. Further dues reductions are contemplated as membership increases in sufficient number permit. The entrance fee for new members remains at \$10.00

* * *

Nominations for Executive Committeemen

Results of the nominating ballot for Division Executive Committeemen of the A.E.I., to serve for the interim period from January 1, 1929, until next convention in October, 1929, are reported as follows: From the Southern Division, Robley S. Stearnes, New Orleans, La.—6; J. A. Fowler, Memphis, Tenn.—24. From the Central Division, Charles J. Sutter, St. Louis, Mo.—10; Earl N. Peak, Marshalltown, Iowa—14. From the Eastern Canadian Division, George Davenport, Toronto, Ont.—1; R. A. L. Gray, Toronto, Ont.—6. From the Pacific Division, J. R. Tomlinson, Portland, Ore.—2; Clyde L. Chamblin, San Francisco, Calif.—48.

Attention of members is again directed to the Constitutional amendments adopted at the Chicago convention in reference to election of executive committeemen. Commencing with the 1929 convention, they will be regularly nominated and elected at the convention meeting for a term of two years by a majority vote of members present and represented by accredited delegates. Mail voting for executive committeemen will be discontinued after the present election, results of which will be reported in the January issue. Members are urged to cast their vote immediately, as no ballots received at headquarters after December 10 will be counted.

* * *

Finds Interest in Local Chapter Plan

That the new group membership plan, providing the charter affiliation of local Electragist chapters, is meeting interest and favor over a large territory is reported by J. R. Wilcox,



Central Division Nominees
Earl N. Peak (left); Charles J. Sutter (right)



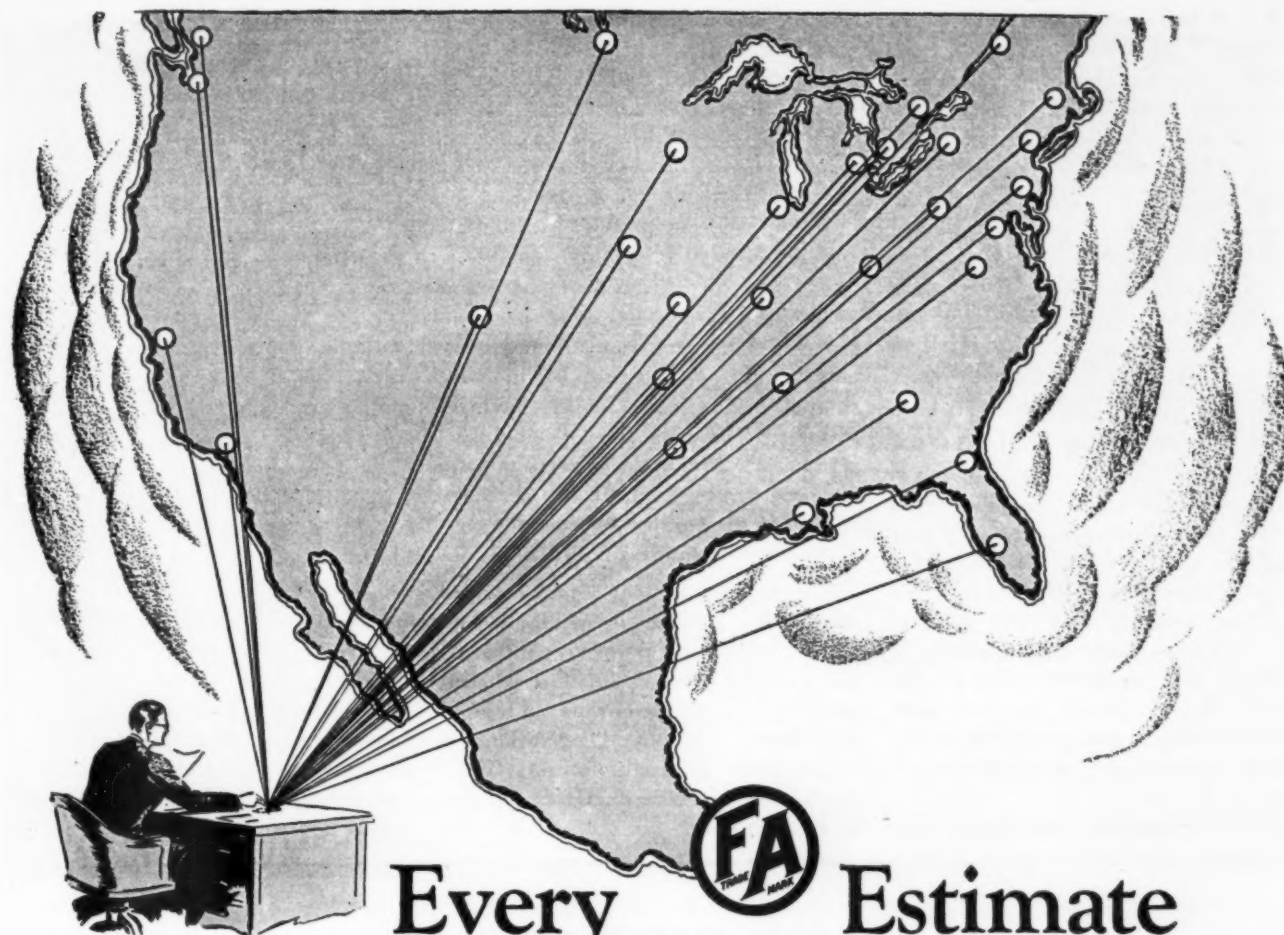
Southern Division Nominees
J. A. Fowler (left); Robley S. Stearnes (right)






Pacific Division Nominees
J. R. Tomlinson (left); C. L. Chamblin (right)





Eastern Canadian Division Nominees
George Davenport (left); R. A. L. Gray (right)




Every Estimate wherever given is The Best Price First

To start with, every job is a mass of detail and figures. A panelboard estimate, to be of any value, must be accurate.  estimates are. They are based on known costs, and standardized by the use of special  figuring forms used by every  district office.

When you have a bid accepted, with  panelboard and switchboard figures in it, you can depend on getting the quality the figures are based on. No "mistakes" can happen that cheapens the product upon delivery.

 wants to serve contractors so that they will build a profitable business for themselves. By stabilized panelboard estimating you can eliminate one of the danger spots in your business.

Talk it over with an  man. There is one near you who will be glad to furnish a catalog and estimates, or you can write. No obligation.

Frank Adam
ELECTRIC COMPANY
ST. LOUIS

D I S T R I C T O F F I C E S

Atlanta, Ga.
Baltimore, Md.
Boston, Mass.
Buffalo, N. Y.
Chicago, Ill.

Cincinnati, Ohio
Dallas, Texas
Denver, Colo.
Detroit, Mich.
Jacksonville, Fla.

Kansas City, Mo.
Los Angeles, Calif.
Memphis, Tenn.
Minneapolis, Minn.
New Orleans, La.


New York City
Omaha, Neb.
Philadelphia, Pa.
Pittsburgh, Pa.
Richmond, Va.

San Francisco, Calif.
Seattle, Wash.
Tampa, Fla.
Tulsa, Okla.
Montreal, Que.

Toronto, Ont.
Vancouver, B. C.
Walkerville, Ont.
Winnipeg, Man.



Tumbler Switch

Simple, sturdy construction, positive quick action with broad contact at current carrying points—these are the outstanding features of the  Switch. To appreciate it however it should be compared to others of same rated capacity.

A.E.I. field representative. Since the Chicago convention in August, Mr. Wilcox has been visiting the principal cities and towns of Michigan, Ohio and Indiana, where Electragist organizations have not been previously established, for the purpose of explaining to the local groups the charter plan in detail, and assisting in the formation of Electragist chapters. Mr. Wilcox will spend the winter months visiting the territory in the middle south and gulf states.

* * *

Install Accounting System Now

Contractors and dealers, whether or not members of the A.E.I., are urged to take their bearings as the new year comes in view over the horizon. For those maintaining accurate cost accounting systems this will amount only to a reasonably simple matter of routine. For others less wise or fortunate, this necessary job will have more difficulties, and most of them are sure to find much important data missing.

Of his prospering established com-

petitor, every contractor or dealer may be certain of one factor, at least, which has contributed to the success, viz: An accurate knowledge of his costs and operating expenses. With no systematic method for recording the basis of this knowledge day by day, no one is in position to compete intelligently, or profitably.

For most of us, the break of a new year is the natural period of preparation for the year's race. Though you may stack up favorably with your competitor on sales ability, service standards, financial background, and reputation for clean sportsmanship and fair dealing, he still has the edge on you if his equipment includes adequate cost accounting facilities.

The improved Electragist Standard Accounting System is available and within the means of every contractor and dealer in the race. For prompt delivery, orders should be addressed immediately to the Association of Electragists, International, 681 Graybar Building, 420 Lexington Avenue, New York City.

Members to Receive Proceedings

Early this month, A.E.I. members will receive printed copies of the 1928 Convention Proceedings and the A.E.I. Constitution and By-Laws as amended to date. Members who were unable to attend the convention will be enabled to acquaint themselves first-hand with the important measures enacted, and to gain an accurate perspective of national activities and developments. Three of the outstanding convention addresses cited in the proceedings are to be printed in pamphlet form at an early date for membership distribution, as follows: "Merchandising by Central Stations" by Prof. Philip Cabot; "The Present Trend of the National Electrical Code" by Victor H. Tousley; and "The New Cooperation" by Louis K. Comstock.

Each member should be informed and up-to-date, particularly on the provisions regarding charter of local associations, election of executive committeemen, and uniform membership dues.

NEW ELECTRAGISTS

The following contractor-dealers have made application and been accepted into the A.E.I. since the publication of the last list in the October issue:

CALIFORNIA

Bakersfield:

Advance Electric Co.
W. T. Drury

Fresno:

Hot-N-Kold Shop of Fresno

San Francisco:

Hot-N-Kold Corp.
Levy Electric Co.

Sonoma:

M. F. Sims

MICHIGAN

Albion:

Good Service Elec. Shop

Bay City:

Affleck Electric Co.
Geo. H. Hohes Co.
Robt. Jereaw & Son
Lee Newcombe Elec. Shop
Nitschky Electric Co.
Reid Electric Co.
Reliable Elec. Sup. Co.

Flint:

Babcock Electric Co.
Cook Electric Co.
M. F. Crankshaw
Marble Bros.

Rawley Elec. Co.

Reliance Elec. Mach. Co.
J. E. Sills Elec. Co.
Van's Elec. Shop

Grand Rapids:

Bouwens Chase Co.
Scott & Motman Elec. Co.

Holland:

Geerds Electric Co.
Looman Elec. Co.
White Bros. Electric Co.

Kalamazoo:

Leonard Boers
Lewis J. Field
Hughes' Elec. Shop
Peter C. Karman

Ludington:

A. Brewster Elec. Co.
Pierce Elec. Shop

Mt. Pleasant:

Thos. M. Milloy Elec. Service

Muskegon:

Jones-White Electric Co.

Owosso:

Chandler & Mann

Pontiac:

Paul's Electric Shop

MISSOURI

St. Louis:

A. H. Borcharding
Franklin Electric Co.
Wm. J. O'Donnell Elec. Co.
Samson Electric Co.
Geo. W. Snarr & Co.

OHIO

Lima:

Wentworth Elec. Co.

Mansfield:

National Elec. Co.

OKLAHOMA

Ada:

Drummond Elec. Co.

PENNSYLVANIA

Braddock:

Given Electric Co.

East Bellevue:

H. A. Bostwick Co.

McKees Rocks:

Chartiers Electric Co.

Philadelphia:

Joseph Gaspari

Pittsburgh:

Beacon Lite Appliance Co.
B. H. Bulger
Devlin Elec. Constr. Co.
Dunker Electric Co.
Hale Electric Co.
F. J. Haubelt
Kramer & Lawrence
Rodden Electric Co.
Ross Electric Co.
Royal Electric Co.
Jesse Stone

Wilkesburg:

Burton Electric Co.
Martin & Murray

TENNESSEE

Chattanooga:

Brainerd Electric Co.

WEST VIRGINIA

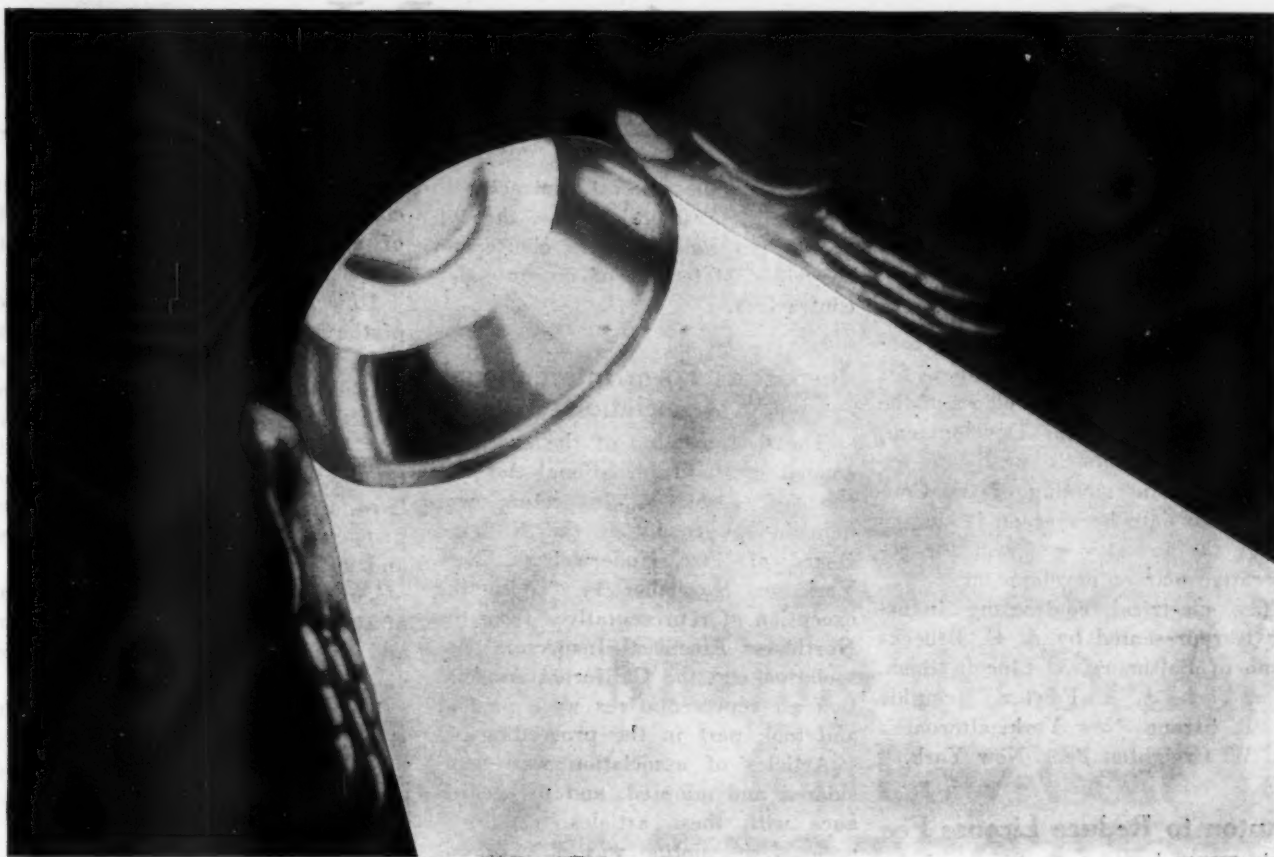
Huntington:

G. L. Hawes

CANADA

Grande Prairie, Alta.:

W. H. Pearson



“Wherever Reflectors Are Used”—

The new Major Chromium Plated Reflectors will serve better for they give a narrow beam, controlled light, projecting further, more candlepower per watt consumed than any other metal reflector. The chromium surface in addition has a dense texture that dirt, corrosion and salt water can't damage. High efficiency is retained a long time and replaced with the wipe of a cloth.

So much better has this reflector proven that it is standard equipment on all Major Borderlights, Footlights, Coves and other theater lighting equipment. It is used also on signs, in windows and many other places greatly increasing the lighting efficiency.

Send for the new Bulletin on these reflectors. Get the facts that will give you a new lighting opportunity

MAJOR
Major Equipment Company
4603 Fullerton Ave., Chicago, Ill.

Sales Offices

In 30 Cities



Contracting NEWS

Sales Conference Called for December 4

The meeting of the Industry Sales Conference to hear the report of the J. Walter Thompson Company, which has been making a six months' field investigation, has been called for December 4 and 5 at the offices of the Society for Electrical Development, New York. This is probably the most important meeting of the Conference to date because on its action hangs the industry program for co-operative market development.

The electrical contracting industry is represented by A. C. Brueckmann of Baltimore, A. Lincoln Bush, New York, J. A. Fowler, Memphis (J. R. Strong, New York, alternate) and W. Creighton Peet, New York.

* * *

Canton to Reduce License Fee

A proposal was made to amend the Canton, Ohio, licensing ordinance which a year or two ago received considerable attention nationally because of the restrictive nature of its fee.

The license fee for contractors has been \$150 and for fixture, construction, maintenance, and sign electricians, \$100. It is now proposed to reduce both classes by \$25.

The Canton ordinance has been subjected to many attacks but it has always won out, and finally the Ohio Supreme Court ruled favorably upon its constitutionality.

* * *

Change in New York Mechanics Lien Law Proposed

Building construction interests in the state of New York have been instrumental in drafting a revision of the State Mechanics' Lien Law, to be introduced at the next session of the legislature, primarily for the purpose of preventing the use of building loans for purposes other than the cost of work.

The amendments to the act provide a time before which no mechanics lien will attach and also a notice of completion for the purpose of providing equality of lien rights amongst the trades.

Provision is made to preserve the

money due the general contractor to meet subcontractors' claims, through the 10 per cent retention clause and a verified statement of amounts due contractors.

* * *

Inspectors Form International Association

The first meeting of the executive council of the International Association of Electrical Inspectors was held in the rooms of the National Board of Fire Underwriters, New York, on November 14. With the exception of representatives from the Northwest Electrical Inspectors' Association and the California Association all representatives were present and took part in the proceedings.

Articles of association were considered and adopted, and in accordance with these articles the international association was duly organized by the election of the following officers: J. C. Forsyth, New York, president; W. H. Boyd, Chicago, first vice president; R. H. Manahan, Los Angeles, Calif., second vice president; N. E. Cannady, Raleigh, N.C., fourth vice president; Victor H. Tousley, the electrical field engi-

neer, secretary-treasurer. The association starts off with a membership of about 2,000, more than half of whom are inspectors.

It is expected that the main office of the association will be in Chicago.

It is the desire of the executive council to interest all inspectors and inspection organizations throughout the United States and Canada in the development of the National Electrical Code from an inspection viewpoint and in the uniform application and enforcement of its provisions;

To cooperate in the formulation of standards for the safe installation and use of electrical materials, devices, and appliances;

To promote the uniform understanding and application of the Code;

To secure and promote uniform administrative ordinances and inspection methods;

To collect and disseminate information relative to the safe use of electricity;

To represent the electrical inspectors in all matters which are dealt with nationally and internationally by the electrical industry;

To cooperate with other national and international organizations in furthering the development of the electrical industry;

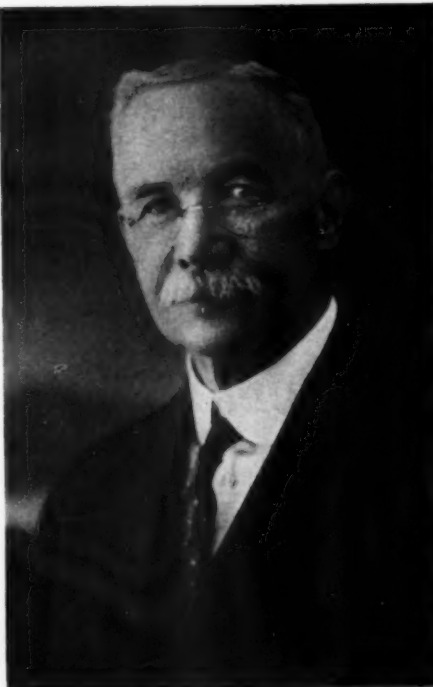
To promote closer cooperation between inspectors, inspection departments, the electrical industry, and the public.

* * *

Grounding Controversy Thrashed Out

A meeting of the Grounding Conference was held on November 15 and 16, in New York City with an attendance of something over one hundred persons. There were delegations present representing the Electrical Committee, the National Electrical Light Association, the National Electrical Manufacturers Association and the Association of Electragists. In addition, there were also present inspectors from both municipal and underwriters organizations.

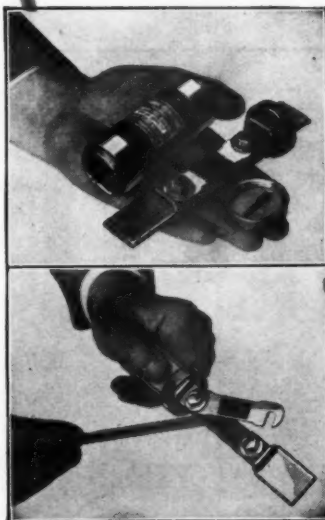
A. R. Small, chairman of the Electrical Committee, presided at all sessions and the members of Article IX



J. C. Forsyth, First President International Association of Electrical Inspectors.



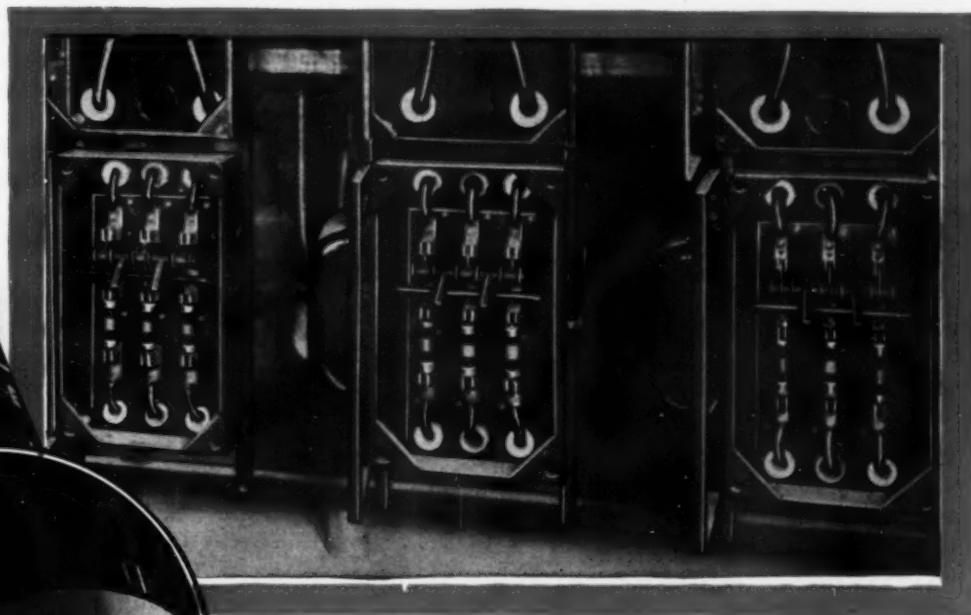
Venting, an important consideration in fuse operation, is secured and maintained by means of carefully proportioned passages in the case. This method provides for the escape of gasses and prevents molten metal from "freezing" the caps.



Fewer number of parts promote speed in renewals. Only one cap is removed. The other remains on the knife blade.

Fusible link of knife-blade type is notched at both ends to permit slipping into or out of place, when studs are only slightly loosened.

The UNION-GEM-JEFFERSON Line
is Sold Through Wholesalers



Meeting the Demand for Low-Cost PROTECTION

NEVER before has value played such an important part in the selection of equipment. For example, more and more plants have learned that fuses are not all alike—that Union Renewable Fuses not only give dependable protection to electrical circuits—but stay in service longer—cost less because they are worth more.

Simplified design and construction keep Union Renewable Fuses as serviceable as new—after repeated blowouts. The extra heavy and tough grey horn fibre case is vented by an exclusive method. Vents are in the fibre shell and are scientifically proportioned to relieve the pressure generated when the fusible element blows. Molten metal is not forced into end cap threads.

In addition to these advantages, which insure a new fuse for the price of a link, the extreme simplicity of design and fewer parts make renewals quick and easy.

In the knife-blade type, both ends of the fusible link are notched—therefore the studs that hold the link need be loosened only slightly when making renewal. In the ferrule type, two nibs on the washers fit into corresponding holes in the body and prevent the link from twisting. Links are bent at one end to make renewal easy.

Our new catalog No. 33 gives complete facts. Send for your copy—also free FUSE CHART which tells at a glance proper size and style of fuses for dependable electrical protection at low cost.

Chicago-Jefferson Fuse & Electric Co.
1503 WEST 15TH STREET
Chicago, Ill.

UNION FUSES

Because they are worth more they really cost less

(8070)

Committee sat on the platform with the chairman.

Chairman Small made a brief address reciting the history of the Code and the purposes for which the conference was called. Mr. Noyes of the Detroit Edison Company then presented a statement on behalf of the utility group and submitted a brief for the consideration of the meeting. Much of the discussion of the meeting was given to the various points raised in this brief.

Representatives of the American Water Works Association presented a brief outlining the policy of this association on the matter of grounding to water pipes. It was stated that the association would not object to protective grounding, but was materially interested in the matter of grounding where any particular amount of current was involved.

The discussions on the first day of the meeting had to do mostly with the matter of the use of the identified wire for the grounding of electrical equipment and the discussions were to this point. These discussions covered the reliability of the present methods of grounding, the possibility of reversing the polarity of wires either accidentally or deliberately, the likelihood of a grounded wire being opened up with the possible attendant hazards for the livening up of the grounded devices,

and the possibility of the use of the identified wire for the grounding of fixed devices.

As a result of this day's discussion, the claims for grounding were very thoroughly defined and comments made by the chairman and others, with inquiries addressed to the light and power group developed a clear understanding of the limitations of the proposal if it had recognition and subsequent additions to the Code.

On the second day of the conference, the problem of the grounding of ordinary electrical appliances in residences was taken up.

Representatives of the National Safety Council, The Aetna Casualty Insurance Company, the Travellers Insurance Company, and the utility group presented data indicating the extent of the hazards from this source. In this discussion the difficulty of applying a requirement for the grounding of portable appliances and domestic applications was clearly brought out.

In the meeting of Friday afternoon, the main discussions were centered around the question of the grounding of portable appliances in industrial establishments, and it was pointed out that this subject needs some consideration and clarification by the committee.

The conference adjourned with no decisions made, but the proceeding

provides that the Article IX Committee will consider all the evidence submitted and will recommend to the 1929 meeting of the Electrical Committee such changes as, in their judgment, may be deemed necessary.

In a general way the views of all interested parties of this conference were completely and clearly expressed and it is believed that the meeting will have a far reaching effect in presenting to the industry the problems involved in grounding and of clearing the atmosphere.

* * *

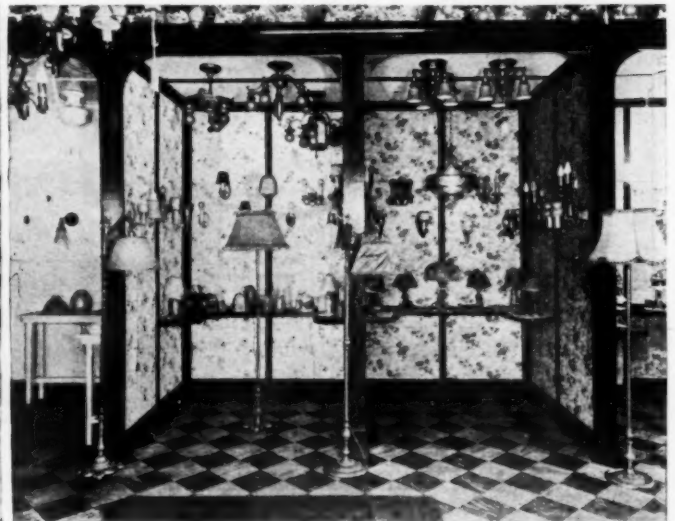
Biddle Resigns A.E.I. Post

N. J. Biddle has resigned as manager of the Detroit branch A.E.I., having accepted the position of general manager of Allied Construction Industries, an organization composed of all the various groups contacting with the construction industry. The primary object of Allied Construction Industries, Mr. Biddle points out, is to establish and maintain sound credit practice throughout the construction industry. Mr. Biddle has been prominent in the electrical industry for the last thirty years.

* * *

Franklin Specifications Plan Adopted

The Franklin Specification, a nationally endorsed lighting plan for industrial and commercial interiors,



Completely Remodels Store:—The Beltzhoover Electric Company, which has been established in Cincinnati for more than thirty years, recently opened its remodeled electric shop in which everything was done to make it the last word in attractiveness. Particular attention was paid to the show window lighting. Four different sets of color lighting were installed with separate switches for controlling the lighting inside of the store. Thus, it is possible to have a different color lighting effect almost every evening. The appliance show cases are made of mahogany. Lighting equipment is displayed in booths, as shown, the shades and glass and small lamps are displayed in cases.



Type "NTA"
No-Thread Unilet



Type "NTC"
No-Thread Unilet



Type "NTE"
No-Thread Unilet



Type "NTLL"
No-Thread Unilet



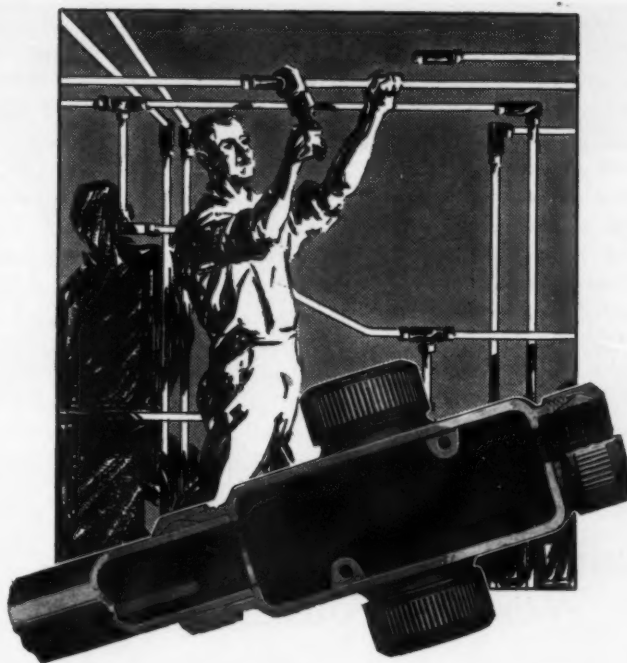
Type "NTT"
No-Thread Unilet



No-Thread Coupling



No-Thread Connector



The tougher the job, the greater the savings— with No-Thread Unilets

Cramped quarters, sharp corners and awkward bends and angles never slow up a conduit installation when Appleton No-Thread Unilets are used. The more difficult the conditions, the greater the savings in time.

With No-Thread Unilets, there are no threads to cut on the ends of the conduit sections, no fittings to be screwed into place. Simply loosen the knurled nut, insert the conduit into the hub

of the No-Thread Unilet and tighten the nut with a Stillson. The result is a perfect ground and a lasting joint.

No matter how difficult the job is—no matter what size of conduit is used there is a size and type of No-Thread Unilet that will do the work better and at a great saving in time.

Write for our latest catalog showing the complete line of types and sizes. No obligation.

Appleton No-Thread Unilets are listed as Standard by Underwriters' Laboratories in 3/8" to 4" sizes, inclusive.

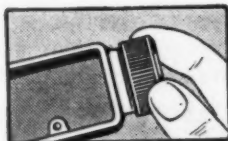
Sold through jobbers

APPLETON ELECTRIC COMPANY

1704 Wellington Avenue • Chicago, U. S. A.

New York—150 Varick Street
San Francisco—655 Mission Street

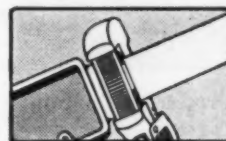
Los Angeles—340 Azusa Street
Seattle—628 Railroad Avenue



1. Loosen nut



2. Insert conduit



3. Tighten nut

APPLETON UNILETS

and CONDUIT
STANDARD FOR

FITTINGS BETTER WIRING

Reg. U. S. Pat. Off.

was adopted on behalf of all branches of the electrical industry, by The Society for Electrical Development at the annual meeting of its board.

The proposed plan which represents a simplified pattern for installations of correct and economical lighting is set up as a companion piece to the Red Seal Plan for adequate wiring in residences, which is now operated nationally as a free service through local electrical leagues.

This, it was stated, provides an interpretative and more or less non-technical specification of adequacy; it provides inspection after installation and certification of such in-

stallations. The committee which developed and submitted the national plan is comprised of thirty members and includes chairmen of the following national groups:

Architects' and Engineers' Committee Association of Electragists; Commercial and Industrial Lighting Committee, Commercial National Section, National Electric Lighting Association; Committee on Lighting Fixtures and Reflectors, National Electrical Wholesalers Association; Industrial Lighting Section, National Electrical Manufacturers Association; Illuminating Glassware Guild, Electrical League Council.

is designed to subject the financing of speculative builders to greater scrutiny and to help guarantee building finance along lines which give the electrical contractor some chance of being paid for his work when the building is completed. Full endorsement of the Morin bill was made by the assembled convention.

In the election of officers which

California Electragists Hold Working Convention

Attended by a larger number of contractors and dealers than at any previous association gathering, the state convention of the California Electragists, held at Fresno, October 27, resulted in record accomplishment.

Despite the fact that the California association is already the largest state organization in the country,

a contractor-jobber credit plan under the sponsorship of the California Electrical Bureau was given by the secretary. In this discussion an appreciation of the jobber problems of distribution was evidenced in every statement. It was felt that the Electragists' organization might help to bring about co-operation between all jobber organizations.

The Biddle Credit Plan (see page 12 this issue) was offered as a tested and proved method of attacking the credit situation. The principle of this plan was endorsed by the convention and recommended to the industry for further study and possible adoption.

A member was appointed to the joint committee of the California Electrical Bureau to take up particular problems in merchandising with central station executives. Stronger local association work was advocated rather than scattered state work after a review of results obtained from the previous state educational work of the California Electragists. A central estimating bureau was urged. Such bureaus are now operating in New York, Baltimore, New Orleans, Detroit, Des Moines, Chicago and many other localities, it was brought out. Cost accounting was urged as the most necessary single activity.

A third and important matter for local association activity was urged in the support of a bill now being placed before the State Legislature by J. W. Morin, President of the Pasadena Bar Association. This bill



Frank McGinley, President Southern California Electragists.

closed the meeting, Edward Martin, San Francisco, vice president during the past year, was named president to succeed H. H. Walker, of Los Angeles. Mr. Martin has been president of the northern division during the past year. Frank McGinley, president of the southern division, was named vice president of the state association. C. J. Geisbush was retained as secretary-manager of the association.

* * *

Secretary-Managers To Meet

Secretary-managers of leagues will hold their second mid-winter conference in Cleveland January 7 to 9, according to announcement from the Society for Electrical Development. Business sessions will be held at the headquarters of the Electrical League of Cleveland with official headquarters at Hotel Statler.

The business program will cover the four divisions of industry problems of greatest interest to leagues throughout the country. Sessions will be devoted to wiring, lighting, appliance and industrial subjects. There will be few set speeches, the conference to be developed along the lines of round table discussions.

Two half-day sessions will be de-



Edward Martin, President California Electragists.

plans for enlarging the membership were considered. Workers who would be a credit to the organization were urged as the type of material to be sought. President Walker urged the placing a responsibility immediately on new members to get them interested and active in the work.

An outline of the activities of the association on behalf of establishing

Noark

Meter Service Devices



"You'd go broke —

if you had to send out a real
circuit man on every meter service job you do."

Noark Meter Service Switches

leave so little wiring to be done—and that little so simple — that you never have any losses because of failure to pass inspection.

Have you a copy of Catalog 56?

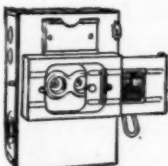
COLT'S PATENT FIRE ARMS MFG. CO.
ELECTRICAL DIVISION

HARTFORD, CONNECTICUT, U. S. A.

NEW YORK · BOSTON · PHILADELPHIA · PITTSBURGH · CHICAGO · SAN FRANCISCO



33-5-40



ACCO
30-60-100 ampere
capacity. Load side
fuses accessible.



SECO
30-60-100 ampere
capacity. All fuses
sealed.

UNIVERSAL
30 Amp. Service En-
trance and facilities up
to 4 branch circuits.

voted to visits to the National Lamp Works, Nela Park. In addition to a round of the manufacturing departments there will be a series of presentations in the Lighting Institute covering various phases of illumination.

* * *

Northwest Inspectors to Meet at Vancouver

Word has just been received from F. D. Weber, secretary of the Northwest Association of Electrical Inspectors, that their third annual meeting will be held in Vancouver, B. C., on September 9, 10 and 11, 1929. Provision will be made for electrical exhibits.

* * *

Cooperation, Theme of Iowa Meeting

The cooperative work instituted by the Iowa Association of Electragists throughout the industry in the State, was the principal theme of the association's fall convention held at Fort Dodge, October 22 and 23.

A Joint Electrical Committee of Iowa was set up some months ago, composed of representatives from contractor-dealers, central stations, jobbers and manufacturers, to take care of unfavorable situations wherever they might exist. The splendid accomplishments of this committee were outlined by President Earl N. Peak, who also acknowledged the cooperation of several central station and jobber representatives.

Tom Kelley of Davenport and chairman of the Iowa Electrical Jobbers, outlined the position of the jobber. He particularly pointed out the necessity for gaining public confidence and good will by distributing standard merchandise. The power companies were represented by Clarence Macy, president of the Iowa Section of the N. E. L. A., who pointed out that the mutual interdependence of the several groups made it essential that they work together to secure their share of the public's business.

Arthur Huntington of Cedar Rapids, spoke on the future of the electrical industry, and Dr. White, chairman of the Committee on the Relation of Electricity to Agriculture, briefly described the development of electric service for rural communities.

Iowa Electragists Surprise Wholesalers

Members of the Iowa Association of Electragists, often feted by the state organization of wholesalers, reversed their form during the recent Dubuque convention and presented bona fide orders for construction materials and supplies from contractors to every wholesaler in attendance. The orders totaled over \$35,000. Thomas F. Kelley, vice president, manager of the Davenport house of the Crescent Electric Supply Co. acknowledged receipt of the orders in behalf of the wholesalers.

Considerable interest was evidenced in the talk by H. B. Kirkland, chairman of the Uniform Ordinance Department of the Society for Electrical Development, who spoke on the subject of enabling acts. Mr. Kirkland enlarged on the value of uniform ordinances.

Trade relations, business ethics, coordination and cooperation, competition between industries and selling standards were touched on in the paper on merchandising by C. A. Nash, general sales manager of the United Light and Power Engineering and Construction Company.

The rest of the convention session was given over to meetings of the several committees and their reports. These committee meetings are probably the most important part of the Iowa State conventions as they offer an opportunity for members to relieve themselves of any local or trade relations difficulties that may have arisen since the previous convention.

* * *

Mary Pickford Heads Committee

Mary Pickford is chairman of a general Southern California committee formed for the National Christmas Outdoor Lighting Contest, sponsored annually by the Society for Electrical Development. Under her direction a bureau of speakers has been organized, a poster contest is being held in leading high schools, musical organizations plan to unite for the singing of Christmas carols,

and a mammoth celebration will be held in Hollywood Bowl.

Word has been received from Washington, D.C., that civic organizations are arranging to decorate the National Community Christmas tree as in previous years. Leagues, central stations, and commercial and civic organizations have indicated their willingness to cooperate in the movement.

* * *

Toledo Illumination School

The Electragists Bureau of Toledo recently conducted a one-day school on the latest developments in factory and store illumination. Those attending were entertained at the regular noon luncheon of the organization which came on that day. T. P. Browne, an electrical illuminating engineer from Nela Park, was in charge of instruction.

* * *

Grounded Sheathed Cable Ready December 1

The Underwriters' Laboratories have announced that the label service for non-metallic sheathed cable, having an uninsulated grounding conductor, was authorized on November 15 for material to be shipped on and after December 1.

The use of this material was made mandatory in the new 1928 Code but it has not been available before because improved fittings had not been developed to take care of the third wire. The laboratories have announced that their list of inspected appliances will soon include a number of connectors for this material which will provide means for connecting the grounding conductor to boxes. Some of these are of the ordinary form of squeeze type connectors provided with two brass washers beneath the head of the squeeze screw. When these are used the grounding connector is bent back through the connector without leaving slack in box, and clamped between the washers beneath the head of the squeezing screw.

Another means provided for securing contact between the grounding conductor and the box consists of a strip of copper which is wrapped about the sheathed cable where it is held by means of the Thomas & Betts No. 2020 connector and wing type connector, such as is used in switch boxes. Two lugs, which are

TRADE MARK

STEELTUBES

**A
Brand
New Product**

will be announced
by this company
next month.

It marks the most progressive step that
has been taken in the electrical industry
in many years and . . . will go far in re-
ducing the cost of
electrical installa-
tions. Write direct
for advance infor-
mation.

ELECTRICAL DIVISION

Steel and Tubes, Inc.

CLEVELAND, OHIO

A subsidiary of Republic Iron & Steel Co.

punched up in the copper strip, provide the means for holding the end of the grounding conductor in place.

The laboratories also announce that the use of labels will not be permitted after March 31, 1929, on sheathed cable that does not have the grounding wire.

* * *

Ordinance Defines Liability

The electrical ordinance of St. Petersburg, Florida, has been amended to define the liability of electrical contractors for damages to employees and the public in the course of electrical construction.

Under the present ordinance, a contractor provides a bond payable to the city of St. Petersburg. Under the amended ordinance, he continues to do so but definitely relieves the city of all damages and accidents incurred during the course of his operations. This is a somewhat unusual provision to find in a city ordinance.

* * *

California Motor Sections Vote Franchise Study

Parallel with the afternoon session of the California Electragists' "blue shirt" convention at Fresno, on October 27, the northern and southern divisions' Motor Sections held their second state meeting of the year.

No set program had been arranged but lively discussion of various motor distribution problems occupied the time.

The most decisive action taken was the appointment of committees in both the northern and southern divisions to make studies of various types of franchise agreements between manufacturers and dealers. Franchise contracts in radio, refrigeration and automobile distribution are to be studied. An attempt will then be made to co-ordinate the best points of each with a view to working out the best possible franchise agreement to submit in the future.

It was felt generally that the new motor policies announced by manufacturers recently were steps taken in the right direction and that except for minor details, as time goes on, should work out satisfactorily.

A definite attempt is to be made to compile specific data on cases of abuses of classifications and of service in order that immediate results can be obtained in rectifying them.

The southern division's section announced that at the Electric Club, Los Angeles, a table was reserved each Monday at which motor dealers met with manufacturers and agents for friendly social contact.

Frank Sievers, chairman of the National Motor Section, and a delegate to the national convention from the northern division; and L. H. Ellett, representing the southern division's Motor Section at the convention, made a report of the activities and the policies outlined at that meeting.

* * *

Washington Organization

A majority of the closed shop electrical contractors of Washington have formed an organization known as The Institute of Electrical Contractors of the District of Columbia, Inc., with R. W. McChestny, president. The other officers are L. D. Souder, first vice-president; L. A. Rogers, second vice-president; L. H. Cleary, secretary and G. G. Colbeck, treasurer.

The institute has active committees for membership, Code, architects and engineers, legislation, trade policy, education and auditing. Besides there will be a joint conference committee which works with a like committee from the Union on matters of mutual interest.

The institute has also effected a wage agreement with the local Union with a 40-hour week governing the basic rate and a scale for journeymen of \$1.50 an hour. Helpers receive from 30 cents to one dollar an hour.

Twenty-fifth Anniversary

The Independent Association of Electrical Contractors and Dealers, Inc., will hold its twenty-fifth annual installation dinner and dance the evening of January 17 at the Hotel Astor, New York.

* * *

Move to Extend Arbitration Laws

The legislatures of 37 states will be asked, early in 1929, to enact a commercial arbitration law more favorable to the requirements of modern business.

The associations actively cooperating in this work include the Association of Electragists and more than 100 other leading national trade organizations. Copies of the model act can be secured from the A. E. I. offices in New York City.

* * *

Work of S.E.D. Approved

Work accomplished under the program of the Society for Electrical Development since the first of the year was unanimously approved by its board of directors in annual meeting on October 23.

With respect to furthering the purpose of the directorate as a forum and clearing house for common problems, it was agreed that hereafter quarterly meetings of the board should be divided into two sessions in order that adequate attention may be given to reviewing and acting upon problems which affect all with equal force.

Among the activities reviewed by the directors were steps taken thus far by Industry Sales Conference in



Trap Shooting by Electric Light:—Nearly sixty trap shooters recently broke clay pigeons at the midnight shoot of the Lynn (Mass.) Fish and Game Association, the light coming from 2,000,000 candlepower in floodlights. F. W. Ralston, lighting engineer of the General Electric Co., was largely responsible for the lighting layout.



WHY SHY at PROFIT?

PROFIT is nothing to be afraid of.

There's nothing dishonest about it.

Your grocer makes a profit—your landlord—the jobber who sells you your supplies—your banker. Even your workmen make a prof-

it, because they don't work for a bare living but insist upon wages big enough to buy cars and radio and cake.

Think it over.

And then—

GO AFTER THAT PROFIT!

RED SPOT

BRONZE EMBOSSED HANGERS

IN Commercial lighting jobs there is always a good profit in equipment that has "eye value"—stuff that looks like the money.

Bronze Embossed "Red Spot" Hangers are leaders in this class. They cost no more than brass; they sell easier than competitive material, and they pay a generous margin of profit to the contractor.

On a number of "price" jobs we've heard about, competition whittled the bids down to bare cost, and then the Bronze Embossed "Red Spot" contractor got the business at twice the price the next man bid.

How come?

Eye value.

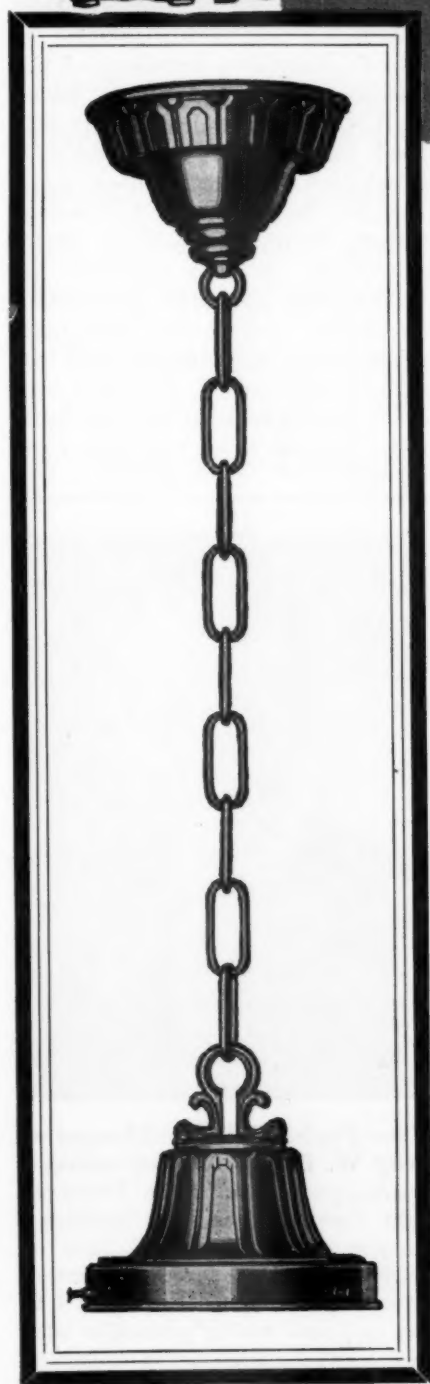
The Bronze Embossed "Red Spot" looks like more money than you ask for it.

Get a sample from us or from your jobber.

RED SPOT

THE F. W. WAKEFIELD BRASS CO.

VERMILION, OHIO



The BENCO Socket



- ① Convenient Assembly, easy to wire, holding the heavily insulated interior snugly within the strong metal housing.
- ② Porcelain Insulation, which makes this extremely rugged socket unusually weather-proof and wear resisting.
- ③ Metal Strength for enduring service indoors or outside. The heavy X-type fitting will "stand a wrench."

The Benco metal clad porcelain socket has been installed in millions of places where service that would speedily ruin the ordinary socket has been called for.

The Pull Chain Benco, like the keyless, is also weather proof. The straight-down, inner pull makes it possible to completely house the pull mechanism.

Where drop cord is used, the Benco Strain Relief Cord Grip takes the strain off the socket terminals.

All Benco sockets are threaded for the easy attachment and correct positioning of reflectors.

We will be pleased to send you interesting information on Benco Sockets and Benco Threaded Accessories. Address nearest office

Benjamin Electric Mfg. Co.

120-128 S. Sangamon St., Chicago

New York
247 W. 17th St.

San Francisco
448 Bryant St.

Manufactured in Canada by the Benjamin Electric Mfg. Co. of Canada, Ltd., Toronto, Ontario

BENJAMIN

TRADE MARK

its study to develop a national selling program; progress with such concerted programs as the Franklin Specification Plan for industrial and commercial lighting; extension of services in connection with the uniform ordinance activity; participation in and preparation of range and refrigeration programs in cooperation with the national associations; enlargement of field work among local electrical leagues and a general attitude of inter-association and inter-company helpfulness in various departments of promotional activities.

W. W. Freeman was re-elected president of the society and the following were elected ranking vice-presidents in the order named:

C. L. Chamblin, president of the Association of Electragists, Int'l.; H. B. Crouse, president of the National Electrical Manufacturers Association; R. Bourke Corcoran, manager of the Electric Association, Chicago; George E. Cullinan, chairman of the executive committee of the National Electrical Wholesalers Association; and P. S. Arkwright, president of the National Electric Light Association. C. L. Edgar was re-elected chairman of the executive committee, and S. L. Nicholson, vice-chairman.



New Pittsburgh League Manager:—Harry W. Ewald, formerly manager of sales promotion of the Duquesne Light Company has been appointed manager of the Electric League of Pittsburgh. He succeeds George Barrows who resigned November 1 to take up house wiring promotion with the power company.

DOUBLE YOUR SAFETY MARGIN



*Install TRIANGLE ARMORED CABLE
with the TRIANGLE CABLE TOOL*



TRIANGLE Armored Cable is risk-free cable because of the way it's made. It meets and passes grueling tests at every step of its manufacture. It is so fine a material, so fit for its job, that you can install it and forget it. That's the first half of your safety margin.

You double this safety factor when you use the Triangle Armored Cable Tool for the installation of Triangle Armored Cable. This easy-working tool cuts and strips armor with two quick movements of the hands. It can't injure the insulation—can't even scratch it. It removes the risk of poor connections at the box, or of raw edges of armor cutting insulation and causing shorts.

Protect yourself against risks! Use the safety combination. Install Triangle Armored Cable and make the work easier and less expensive by using the Triangle Armored Cable Tool.

TRIANGLE

CONDUIT CO., INC.

General Offices: Dry Harbor Road and Cooper Ave.
Brooklyn, N. Y.

Factories: Brooklyn—Chicago—Butler, Pa.

In Canada: Canadian Triangle Conduit Co., Ltd.
Toronto



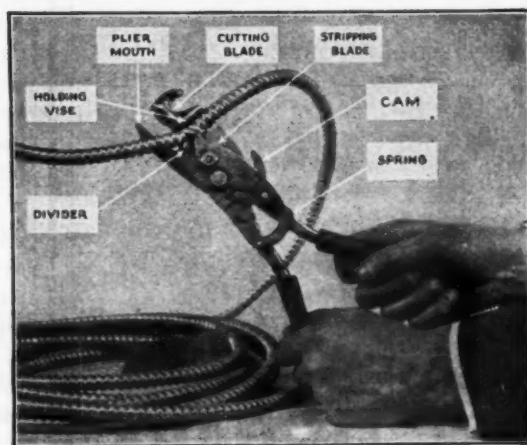
Triangle Products

ARMORED
CONDUCTORS
(round, flat, and leaded)

▲
"TRIEX"
(non-metallic sheathed
cable)

▲
NON-METALLIC
FLEXIBLE CONDUIT

▲
RIGID STEEL CONDUIT



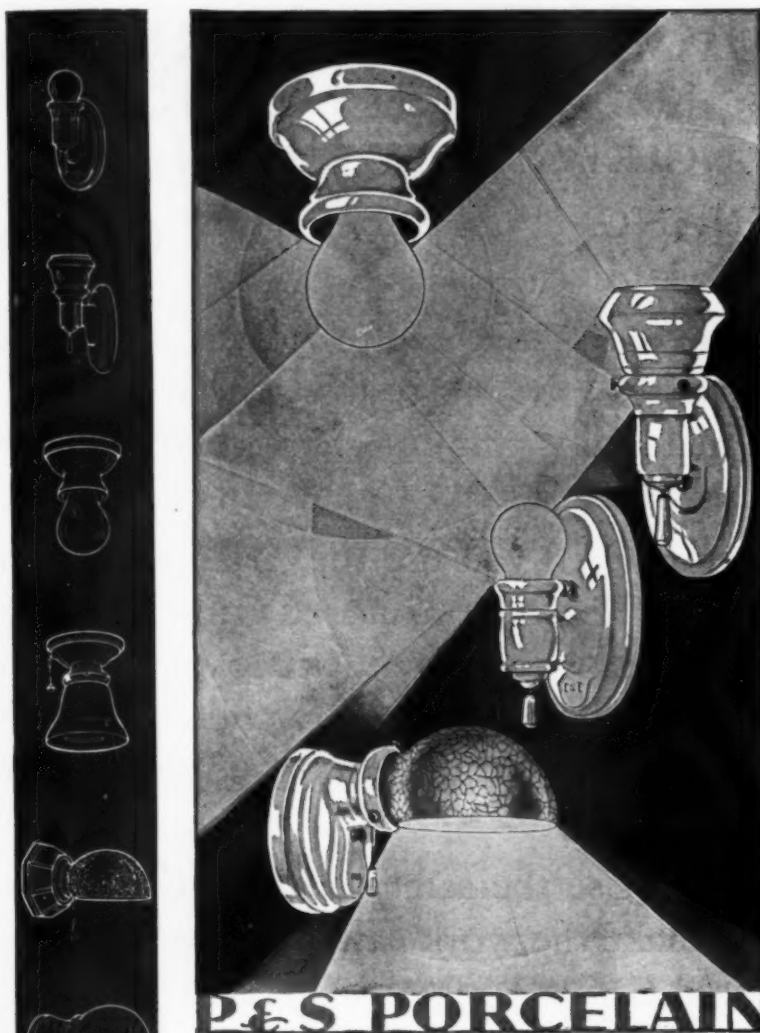
Triangle Products

FLEXIBLE
STEEL CONDUIT

▲
RUBBER-COVERED WIRE

▲
RUBBER-COVERED
LEAD-ENCASED WIRE

▲
TRIANGLE
ARMORED CABLE TOOL



THERE'S durability and a balanced beauty to P&S Alabax seldom found in lighting fixtures. P&S Alabax is made from the finest china clay, processed by our own methods to produce a strong, hard-surfaced porcelain. It will not stain, tarnish, rust or peel in any climate or under any conditions. It is non-conducting—a safe and perfect insulator. Finished in colors, or in a plain white glazed finish.

You will find no difficulty in convincing customers of the merits of P&S Alabax lighting units. They are reading about them now—through our advertising in the leading national magazines. Every P&S Alabax sale means a good profit margin.

SOLD THROUGH JOBBERS

Send for our complete catalogue showing the P&S Alabax line in full colors.

"P&S make labor less"

PASS & SEYMOUR, INC.
Division C Solvay Station Syracuse; N. Y.



ALABAX
LIGHTING FIXTURES



Organization Brings Contractors Time and Money to Play Golf:—The Electrical Contractors of Youngstown, Ohio, have been organized as a chapter of Electragists a little over six months. In that time the incompetents have been weeded out, prices have been readjusted, more work enjoyed and the men all making a profit. They are working under a plan of estimating that makes them give consideration to overhead. Each member now gets a monthly statement from a firm of auditors. Now the Youngstown men have time and money to play golf. Here are shown, front, W. H. Axelson and E. C. Carlson; rear, George Sandquist and Leo J. With, who upheld the contractors' honors in a match with the plumbers.

Canada to Have Testing Laboratory

Preliminary work in preparation for an approvals laboratory for electric products in connection with the National Research laboratories at Ottawa was authorized at the recent meeting of the Canadian Engineering Standards Association held to discuss the revision of the Canadian Electrical Code.

Suggestions for revisions to the Canadian Electrical Code were well discussed using as a basis the recommendations from Committee of Provincial Representatives. As a result of the discussion many recommended revisions were approved, particularly with regard to grounding, motor rules, demand factors, wattage of

Here It Is!



The New



Color Chart

0-6 Amperes	—Brown
10 "	—Yellow
15 "	—Blue
20 "	—Pink
25 "	—Red
30 "	—Green

"COLORTOP" FUSE

The Capacity of a Plug Fuse Is Now Known by the Color It Bears

Four Million Already Sold!

Although TRICO "COLORTOP" Fuses have been in the market only a short time, four million have already been sold. This indicates the enthusiasm with which TRICO "COLORTOP" Fuses have been received.

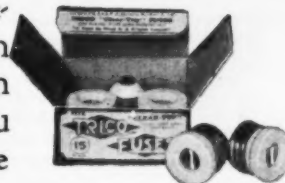
**A New
Creation
and a
Fast Seller!**

Sample Box Free!

If you want to see them before ordering, tear off picture of box below, pin to your card or letterhead and mail to us. We will send a box of assorted TRICO "COLORTOP" Fuses without charge or obligation.

Important to Fuse Buyers!

TRICO has created and pioneered the manufacture and sale of "COLORTOP" Fuses. In order to avoid confusion of colors in your stock through the misappropriation of our good will, we request that you retain the above Color Chart and insist upon TRICO FUSES with Colored Tops when buying Plug Fuses. In return for your co-operation, we shall continue to furnish you with "COLORTOP" Fuses in uniform colors and without increase in price.



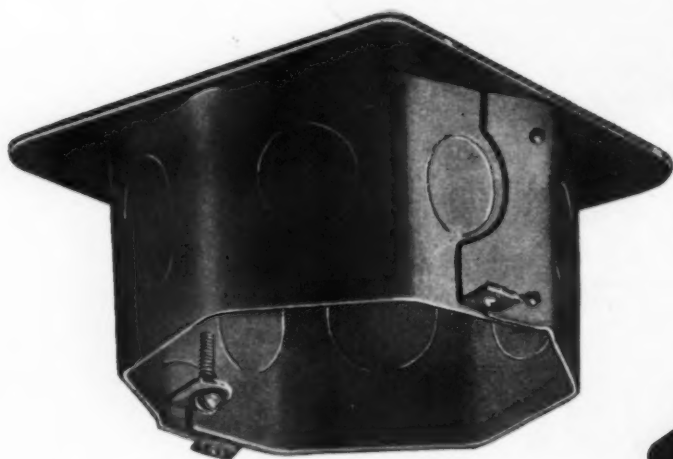
TRICO FUSE MFG. CO., Milwaukee, Wis.

Approved by Underwriters' Laboratories

WARNING: The Colored Top Plug Fuse Is Fully Protected

The use of KNIGHT is a Real Money-

\$ BETTER ANCHORING!



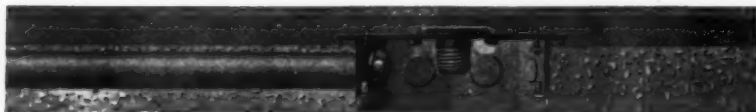
\$ ATTACHED FIXTURE STUD

The pressed steel stud riveted into the cover, makes a perfect ground between the fixture and the outlet box. Being already in place, it saves much valuable time—no extra parts to bother with.

A glance at the illustrations on the left will immediately show you the difference between Knight patented concrete outlet boxes and inferior types. Note how the Knight box with patented projecting cover gives a positive anchorage in concrete of box, fixture and conduit. This is impossible to obtain with the types shown on the opposite page. We know of cases where boxes, conduit and fixtures have fallen, causing injury to people. Be sure to demand Knight boxes whose patented features prevent dislodgment in concrete. If you haven't samples and prices, write us and we shall gladly send them.



Pat. No. 1,210,492 dated Jan. 2, 1917
1,302,057 " Apr. 29, 1919
1,471,340 " Oct. 23, 1923
Other Patents Pending



\$

In this cross section, notice how the overlapping edges of the cover anchor the box in the arch. It is physically impossible to dislodge the box without tearing away a lot of solid concrete. No danger of fixtures getting wobbly or dropping on innocent passersby.

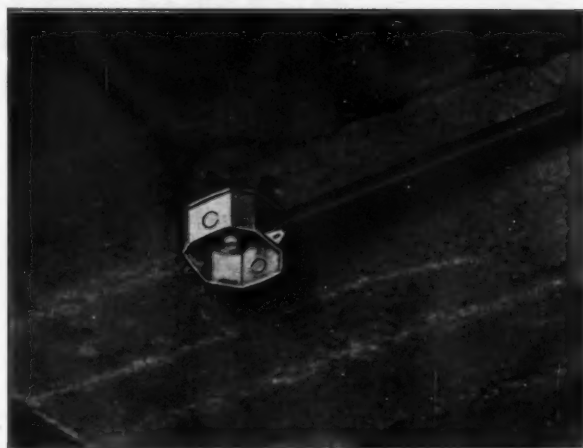
The following companies are licensed under J. G. Knight Patents to sell concrete boxes stamped with their respective trade-marks:

R=Rattan Mfg. Co., New Haven, Conn.
W=Walker Bros., Philadelphia, Pa.
P=Pratt Chuck Co., Frankfort, N. Y.

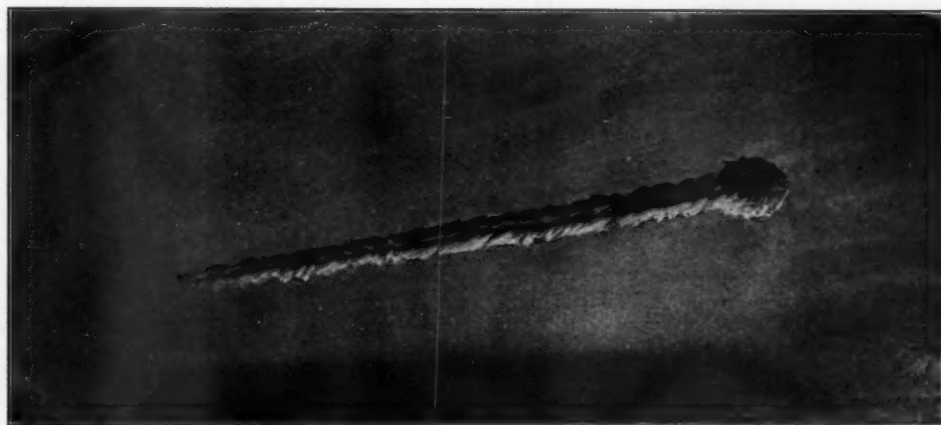
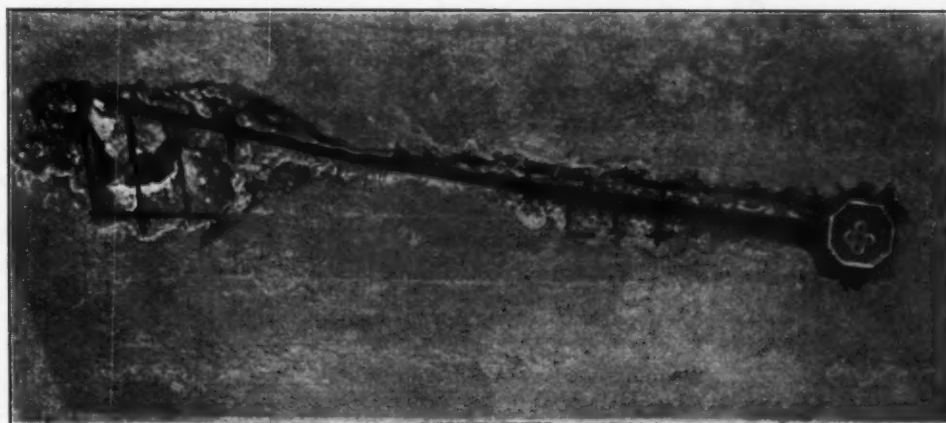
THE J. G. KNIGHT CO, INC.

CONCRETE BOXES *Making Idea!*

These photographs were taken in three different buildings during construction. In these buildings, 120 boxes and conduit had to be reset. You know just about what this costs, and you also know the electrical contractor had no assurance after the resetting that the trouble would not occur again. You can avoid the endless amount of trouble and expense by installing Knight Patented Boxes with the projecting cover.



\$SPECIFY
and DEMAND
KNIGHT
Concrete Boxe\$



*If your jobber
can not supply
you, write us
direct*

32-36 MORTON ST. **BROOKLYN, N. Y.**



The Kayline Unit

SOLVES, by its superior features, the problem of lighting most small public buildings and many large ones.

Compare the following advantages with any other lighting unit.

Highest Efficiency Ever Attained
(90% Light Out-put)

Shadowless Distribution of Light
(Equal Illumination)

Regular Scale of Wattage Sizes
(100 Watt to 500 Watt)

Variation of Fixture Types
(Plain to Orn. Ring Designs)

Three Ornamental Applications
(Classic, Gothic and Romanesque)

Bronze metal is used for the cast and spun parts of the Kayline-Radiant unit, insuring a permanently beautiful finish and lasting construction.

Catalog showing various types and designs will be sent on request. Samples will be furnished for test purposes. Our engineers will gladly go over your lighting problems. Send for them.

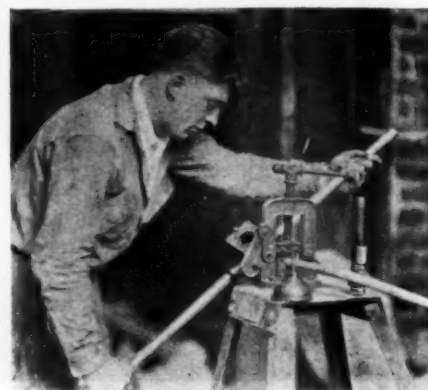
THE **KAYLINE** CO.
CLEVELAND, O.

outlets and other matters and full advantage was taken of the experience gained since the publication of the first edition of the Canadian Electrical Code in October, 1927. Revisions appearing in the National Electrical Code for 1928 were considered, much of the material therein contained being approved for adoption and a certain amount of the material from provincial rules will be incorporated in the new edition of the Canadian Code.

Part 2 of the Canadian Code covering specifications was considered and it was decided to proceed with the drafting of specification for electrical apparatus in preparation for the establishment of an approvals laboratory for electrical apparatus in connection with the National Research laboratories at Ottawa. It was felt that these specifications should cover minimum standards and that they be modelled mainly on specifications now being used by the Hydro-Electric Power Commission laboratories at Toronto and Underwriters' Laboratories at Chicago, also any available British specifications.

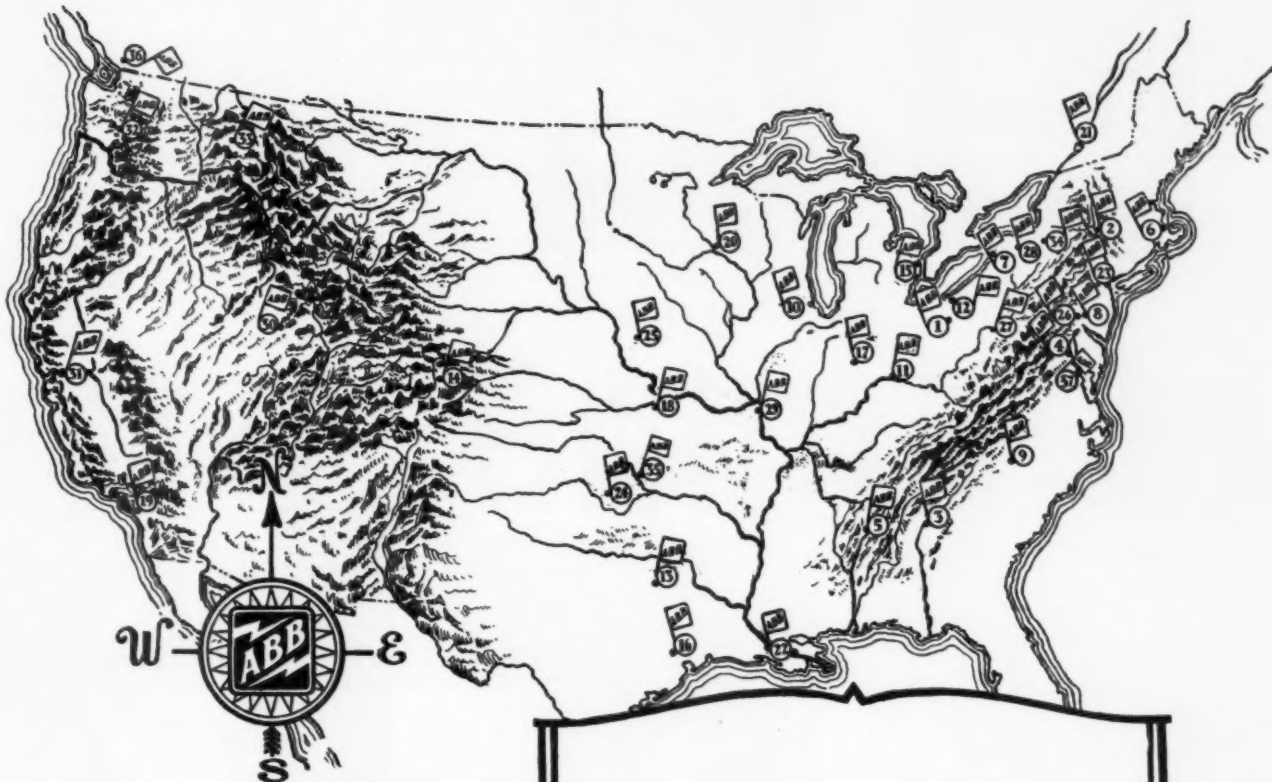
With reference to Part 3 of the Canadian Code covering outside wiring rules it was felt that the drafting of rules be proceeded with at once.

The revisions approved at the meeting of the Code Committee will be issued in draft form and sent out to the various provincial committees for final endorsement. Thereafter preparation will be made for the publication of the second edition of the Code and it is hoped to issue this in the spring of 1929. It was the consensus of opinion that this second



Wanted, a nipple or bushing. A piece of $\frac{3}{8}$ -in. rod threaded and bolted to the vise stand, as illustrated, will hold a number of nipples, bushings and locknuts and keep them from getting lost.

37 Points of Contact bring *Packard* and A-B-B Transformer Service close to you



- | | |
|---|---|
| 1 AKRON
46 East Buchtel Avenue | 19 LOS ANGELES
101 Chamber of Commerce |
| 2 ALBANY
715 City Savings Bank Building | 20 MINNEAPOLIS
1008 Marquette Avenue |
| 3 ATLANTA
Candler Building | 21 MONTREAL
1111 Beaver Hall Hill |
| 4 BALTIMORE
432 N. Calvert Street | 22 NEW ORLEANS
203 Natchez Building |
| 5 BIRMINGHAM
Brown-Max Building | 23 NEW YORK CITY
Graybar Building |
| 6 BOSTON
842 Summer Street | 24 OKLAHOMA CITY
1020 Colcord Building |
| 7 BUFFALO
775 Ellicott Square | 25 OMAHA
Electric Building |
| 8 CAMDEN
Main Office | 26 PHILADELPHIA
Real Estate Trust Building |
| 9 CHARLOTTE
117 Lenoir Building | 27 PITTSBURGH
Union Trust Building |
| 10 CHICAGO
19 Wells Street | 28 ROCHESTER
89 East Avenue |
| 11 CINCINNATI
1310 Union Trust Building | 29 ST. LOUIS
Flinters Building |
| 12 CLEVELAND
Bulkley Building | 30 SALT LAKE CITY
228 South West Temple |
| 13 DALLAS
Allen Building | 31 SAN FRANCISCO
583 Howard Street |
| 14 DENVER
1429-16th Street | 32 SEATTLE
507 Polson Building |
| 15 DETROIT
2847 Grand River Avenue | 33 SPOKANE
27 Main Avenue |
| 16 HOUSTON
Electric Building | 34 SYRACUSE
614 City Bank Building |
| 17 INDIANAPOLIS
315 Traction Terminal Building | 35 TULSA
Atlas Life Building |
| 18 KANSAS CITY
Mutual Building | 36 VANCOUVER
Standard Bank Building |
| | 37 WASHINGTON
1000 E Street, N. W. |

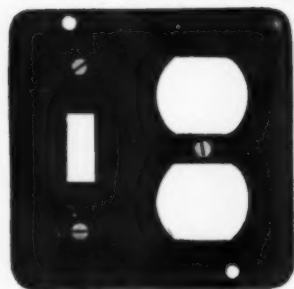
A NEAR-AT-HAND representative assures prompt action in taking up transformer problems. He will gladly give you data on any type or size of Packard or A-B-B Transformers.

AMERICAN BROWN BOVERI ELECTRIC CORPORATION
MAIN PLANT CAMDEN, N. J.

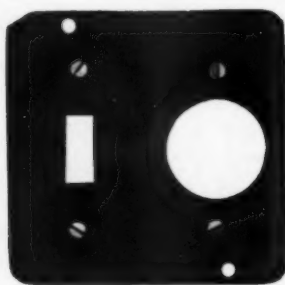
Makers of
Turbo-Generators — Mercury-Arc Power Rectifiers — Oil Circuit Breakers — Transformers

AMERICAN BROWN BOVERI

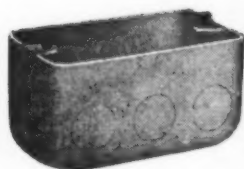
ANYTHING ANY CONTRACTOR Wants!



RS-2



RS-1



58361



58C1



58C3



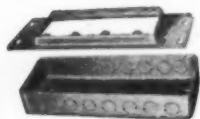
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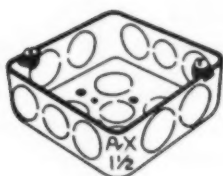
58C7



4-Gang Box and Cover



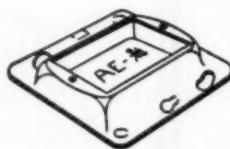
No. 54551



4" Square



4" Octagon



Switch Cover

Devoting itself to the contractor's requirements, the Steel City Electric Company, through its jobbers is supplying the contractors with every conceivable product necessary for wiring an installation.

We offer you a complete line. Run down the list of your needs, specify "Steel City" and you are assured that every item will be 100% satisfactory.

Have you our latest catalog?



Steel City Electric Co.
PITTSBURGH, PA.



edition should not need revision for at least two years and it was proposed that the next meeting of the C. E. S. A. Committee on Canadian Electrical Code be convened in 1980.

Reports from all provinces indicate the successful progress of the Canadian Electrical Code since its publication by the Canadian Engineering Standards Association and it is felt that much has been accomplished in the attainment of uniform wiring rules throughout Canada.

* * *

Boyd Joins Pacific Electric Motor Company

Frank E. Boyd, formerly manager of motor sales of the industrial department of General Electric Company in San Francisco, has become half-owner of the Pacific Electric Motor Company, Oakland, one of



Frank E. Boyd

the leading industrial electrical contracting specialists on the Pacific Coast. Part ownership in Resilient Terminals Company, an affiliated company, is also announced.

Mr. Boyd is a member of the California State Committee on the Relation of Electricity to Agriculture. He was formerly a director of the San Francisco Electrical Development League, the Pacific Coast Electrical Association and past president and director of the San Francisco Sales Managers Association.

* * *

New Illinois League

An electrical league has been organized in Decatur, Ill., headed by Howard Krigbaum, president, and

ARROTEX PLATES



ARROTEX - A new design in molded plates - embodying dignity and beauty



Minerallac Cable and Conduit Hangers

Japanned or Galvanized



$\frac{3}{8}$ to $2\frac{1}{2}$ inches

These hangers are made of spring steel and are much stronger than cast iron hangers. They are easily and quickly put in place and open wiring conduit and cable may be run with greater rapidity than by the use of other hangers and it, also, allows a more compact arrangement.

Minerallac Hangers have been approved by the Underwriters Laboratories for use on circuits up to 300 volts when mounted directly on the surface wired over. For voltages from 300 to 550 volts—these hangers must be installed with spacers under the base of the hanger or mounted on metal racks or brackets so as to hold the conductors at least 1" from the surface wired over. For voltages above 550 volts—the hangers should be used with insulating bushings having the necessary insulation strength. In this case, also, hangers should be mounted on metal racks or brackets to hold the conductors far enough from the surface wired over to preserve the required electrical clearance.

MINERALLAC ELECTRIC COMPANY

25 North Peoria Street

Chicago, Illinois

E. O. Weatherford, secretary-treasurer. The first league activity will be a Christmas lighting contest to be followed by Red Seal work.

* * *

Electragists' Group Advertising

The Maryland Chapter of the Association of Electragists, (Baltimore), is running a series of effective weekly advertisements in the local newspapers pointing out the economies of adequate wiring and directing attention of prospective customers to the quality workmanship and electrical service offered by electragists. A similar advertising program is being launched by the Electragists of Flint, Mich.

* * *

Wiring Standards on Card

Minimum Wiring Standards Recommended by The Electrical League of Cleveland

OUTSIDE ENTRANCES—One ceiling or one side outlet. One single-pole switch.

PORCHES—One ceiling or one side outlet. One single-pole switch. One convenience outlet, 18 inches from floor, if floor area is in excess of 100 sq. ft.

VESTIBULE—One ceiling or side outlet and one single-pole switch if floor area is in excess of 10 sq. ft.

HALL—One ceiling outlet and one single-pole switch. If there are two door-ways more than 10 feet apart, two three-way switches. Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

STAIR HALL—One ceiling outlet and 2 three-way switches. Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

LIVING ROOM—One ceiling outlet if room is nearly square. If length is more than $1\frac{1}{2}$ times the width 2 ceiling outlets, or 4 side bracket outlets may be substituted for one ceiling outlet or 4 side bracket outlets may be substituted for 2 ceiling outlets. For one door-way, one single-pole switch. For 2 door-ways more than 10 ft. apart, 2 three-way switches.

Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

LIVING ROOM MANTEL—Two side outlets in wall above mantel, or 2 convenience outlets in mantel shelf.

SUN ROOM—One ceiling outlet. For one door-way, one single-pole switch. For 2 door-ways more than 10 ft. apart, 2 three-way switches.

Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

DINING ROOM—One ceiling outlet. For one door-way, one single-pole switch. For 2 door-ways more than 10 ft. apart, 2 three-way switches.

Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

BREAKFAST ROOM—One ceiling outlet. One single-pole switch. One duplex convenience outlet just above level of table top.

KITCHEN—One ceiling outlet. For one door-way, one single-pole switch. For 2 door-ways more than 10 ft. apart, 2 three-way switches. One ceiling or side outlet over sink controlled by switch or pull chain. One duplex convenience outlet 4 ft. high near sink.

REFRIGERATOR ROOM—One ceiling outlet. One single-pole switch. One convenience outlet.

REAR HALL—One ceiling outlet. For one door-way, one single-pole switch. For 2 door-ways more than 10 ft. apart, 2 three-way switches. One convenience outlet 4 ft. from door.

HALL, SECOND FLOOR—One ceiling or side outlet. Two three-way switches. One convenience outlet 4 ft. from door.

BED ROOMS—One ceiling outlet. One single-pole switch.

Convenience outlets—One for each twelve feet of baseboard to be installed in wall or baseboard approximately 12 ft. apart.

CLOSETS—One lighting outlet controlled either by pull chain or door switch, if floor area is in excess of 10 sq. ft.

BATH ROOM—Two side wall outlets, one on each side of mirror located 3 ft. from floor. One single-pole switch. One duplex convenience outlet at right of lavatory 4 ft. from floor.

BASEMENT—One ceiling outlet at foot of stairs controlled by a switch at the head of the stairs. One ceiling outlet located at or near the furnace. One ceiling outlet over laundry trays. One outlet in ceiling, 2 ft. in front of the center of laundry trays, for clothes washer. One convenience outlet.

NOTE: The outlet for the clothes washer shall be equipped with a porcelain key socket hung $5\frac{1}{2}$ ft. from the floor.

FRUIT ROOM—One lighting outlet.

COAL ROOM—One lighting outlet.

GARAGE—Two ceiling outlets; one outside outlet; one duplex convenience outlet in center of rear wall, four feet from door.

Revised November 12, 1937; October 15, 1938.

The Electrical League of Cleveland has circulated pocket size cards containing the minimum wiring standards recommended by the organization. The standards are classified and arranged in a manner aiding quick reference.

Wired Throughout with

*Hotel Stevens is the largest
hotel in the world*

American Steel & Wire Company RUBBER COVERED WIRE

Only the very finest material and the most rigid specifications were approved for this great building. The selection, therefore, of two million feet of our rubber covered wire to meet these demands expresses most forcefully the uniform and dependable quality of the product and further gives striking evidence as to the standing with leading architects and customers.

Let us send you our indexed catalog and handbook of electrical wires and cables. Estimates furnished promptly from any of our offices in all of the principal cities.

AMERICAN STEEL & WIRE COMPANY



if the Product is Good It is Easy to Sell

When industry buys it buys for permanence and profit. If the desired product is made to last, and, as in this case, if it will increase profits through increased production, decreased spoilage and reduced accidents; then it is easy to sell.

the New *Levolier* Fixture Switch

opens for you an opportunity to tie in with the big campaigns now under way by central stations, electrical leagues and reflector manufacturers, through the idea of individual control of the big lamp units.

The new Levolier Fixture Switch will stand the wear and tear of the hardest service—even the smash of the initial surge when switching a cold 500-watt gas-filled Mazda Lamp.

Just the thing for modernizing the old jobs and where new installations must be cut to the bone this switch will save costs in reducing conduit run, wall switch and labor charges.

Let us send you a sample



Stocking Odd Lengths of Cable



A convenient method of stocking odd lengths of cable is shown in the above illustration. Three pieces of 1½ in. conduit are embedded in the floor. When a man comes in from a job with a short length he measures and tags it and throws it over a peg. These pegs are in front of the supply of complete coils so that a wireman does not have a tendency to forget the odd lengths of cable and get a new coil.

* * *

Co-operative Range Merchandising

Co-incident with the establishment of lower rates for electric heating and cooking in Des Moines, Iowa, the Master Electricians Association has effected with the local power company a co-operative plan for selling electric ranges, making possible the quotation of "prices installed" to customers and providing an incentive for local dealer participation satisfactory to them.

Ranges are consigned by the power company to the dealers for display and sale from their stores. The power company also maintains a display and salesroom. All ranges are quoted at list price, including installation, plus a carrying charge to customers purchasing on a time-payment basis. Minimum down-payment accepted is \$10.00, with carrying charges of 6 per cent for twelve months, 9 per cent for eighteen months, and 12 per cent for twenty-four months added to the net bill. The customer is allowed a deduction from the list price, \$20.00 maximum, for his old cooking

Just a twist of the wrist ~that's all

Easy to handle, easy to install, built to withstand the hardest kind of service and sold at a price that is attractive . . . these are the features that have made the Condit Type N-4 the most popular switch for small motors, 5 H.P. or less.

It comes manually operated or with push button control, and with or without thermal cutouts for overload time-lag protection.

CONDIT ELECTRICAL MFG. CORPORATION

Manufacturers of Electrical Protective Devices

BOSTON, MASS.

Northern Electric Company
LIMITED

Distributors for the Dominion of Canada



Type N-4

Specifications: 3 or 4 pole; standard sizes 30 amperes, 600 volts. For small motors, 5 H.P. or less. Approved by Underwriters.

CONDIT



THE S8 CATALOG

Lighting Fixtures selected from this catalog are shipped within 24 hours, or less, after receipt of order.

FOR QUICK SERVICE USE THE TELEGRAPH OR AIR MAIL AND THE BEARDSLEE S8 CATALOG



BEARDSLEE
Chandelier Mfg. Co.
230 South Jefferson Street
CHICAGO, ILLINOIS

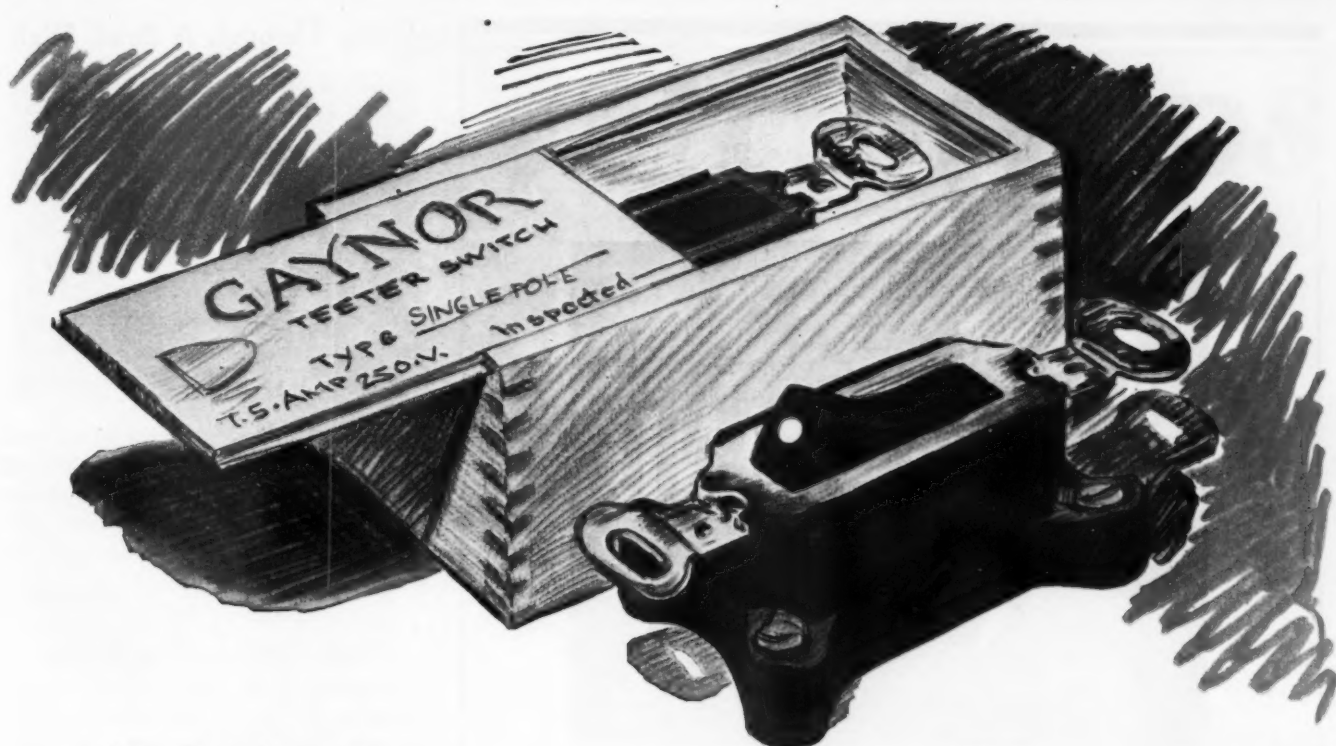


equipment. If the power company sells the new range, they absorb the amount of this deduction in full. Where a dealer makes the sale, half the amount is borne by the dealer and half by the power company. When a dealer makes the sale, he is paid in full immediately after installation by the power company, in amount of 25 per cent of list price, plus installation charge of \$40.00, less half the amount allowed for customer's old cooking equipment. The power company collects from the customer whether the transaction be for cash or time.

The \$40.00 flat charge for installation was determined by averaging a number of estimates submitted by local contractors as sufficient to cover the average job, meeting local ordinance requirements and National Electrical Code rules.



Break Tile Only Where Necessary:
—When running down a hollow tile wall it is not necessary to break the tile all the way down. As shown in the illustration the tiles are broken only where the reinforcing in the tile interferes with the run.



"All Bound Round" with a WOODEN BOX

This new GAYNOR rocker motion toggle switch is so good that it deserves the best kind of packing. Nobody knows better than you how much abuse a switch gets before it is installed. The railroads don't exactly cuddle the cases in which it is packed. Truckmen are not noted for their velvet hands and soft caresses. Even a stock clerk has been known to toss a package from ladder to floor. Now and then a bundle of pipe or a coil of wire has been seen to fall on a carton of wiring devices. To be entirely truthful we must confess to having seen seven or eight switches with bent handles and broken caps that got that way by ungente handling. Mebbe we've seen more.

So this finest of all flush switches is packed in a wooden box with a



slide cover. A neat package that fits the switch like the casing on a sausage.

But not so fragile. It will stand abuse. It protects the switch and gets it on the job undamaged and ready for fifteen or eighteen thousand years of service. That's something new in the electrical game.

Afterwards, the contractor can use the box for screws, small tools 'n everything. Even the box is forever useful.

Be honest. Wouldn't you like to see a sample and get prices?

The mails* are at your service. Our address is

GAYNOR ELECTRIC CO., Inc., BRIDGE PORT, CONN.

And we sell the electrical trade thru verified jobbers exclusively.

*Air mail is the quickest. It costs five cents to send a request on thin paper.



FAIRNESS

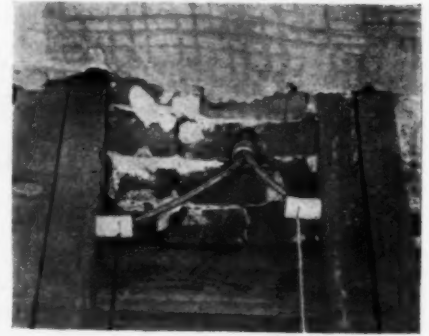
One of the easiest and best ways to have an ever-growing business is by fairness on every job.

Every conduit installation of "GALVADUCT" or "LORICATED" is an added assurance of fairness. The manufacturer has had that reputation for more than thirty years.

By the way, have you noticed how easy it is to bend these conduits? Try it.

GARLAND
Manufacturing Co.
 Pittsburgh, Pennsylvania

Going Through A Brick Wall



When running through a brick wall in knob and tube wiring the splicing on of a short piece of flexible cable is unnecessary if a piece of 1-in. pipe is driven through the wall and the wires run in loom through same.

* * *

Study Code in Des Moines

Sponsored by the Master Electrician's Association, the four branches of the electrical industry of Des Moines, Ia., listened to an address on November 21 by H. B. Kirkland, director of the uniform ordinance department of the Society for Electrical Development on the subject of the 1928 National Electrical Code and its application through the Uniform Ordinance.

Mr. Kirkland dwelt on the menace of sub-standard electrical goods, recommending the prohibition of the sale thereof.

Mr. Kirkland's address was received with much interest and enthusiasm by all who were present. Preceding his address there were talks by M. M. Welton, manager Mid-West General Electric Co., R. J. Walther, Walther Manufacturing Co., E. N. Peak, president Iowa Association of Electragists, Joe Schilling, manager merchandise department, Des Moines Electric Light Co., H. E. Stedman, chief electrical inspector of City of Des Moines and R. W. Honegger, president, Capital City Electric Co. C. B. Fountain, proprietor, Fountain Electric Co., and president, Master Electrician's Association presided.

Mr. Kirkland spent November 21 in conference with the local association and city electrical inspector in going over the rewriting of the new Des Moines code.

He spent the next day in conference with the legislative committee of the Iowa Association of Electragists in helping to construct an addition to the present State enabling act.

Catalog No.
A-1S



It Snaps in—

that's why it can't
fall out!

The New
"Spring" Type

T&B "Slip-In"

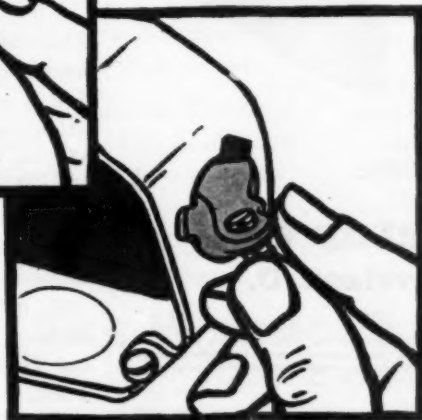
TRADE MARK

3/8" BOX CONNECTOR

Approved by National Board.



When the Steel Spring is engaged against edge of knockout and compressed you can then snap connector into position



Held securely in knockout by
the tension of the steel spring

- 1—Sold assembled—ready for use.
- 2—Makes a perfect ground.
- 3—Can't fall out.
- 4—Saves time and money.

The "T & B" "Slip-In" Connector is designed to take No. 14W2, 14W3 and 14-C, 14-P Cord

THE THOMAS & BETTS CO.
15 PARK PLACE NEW YORK, N. Y.



**"Boost Your Sales
with ABolites"**

ONLY ONE industrial plant out of five has adequate lighting. What an opportunity for you to show their executives how easily and economically ABolites will help to eliminate slowed-up production, spoilage and accidents—and to secure some profitable business for yourself as well!

"Jobber Salesman"



RELIABILITY

Write for Details and Prices

The ABolite Reflector Co.
2400 East 75th Street, Cleveland, O.

RELIABILITY

Outdoor Lighting Equipment Booklet Produced

The Artistic Lighting Equipment Association has produced a booklet on outdoor lighting equipment and lanterns, showing various phases and applications of this type of lighting. It gives the origin and development of the lantern. It is illustrated and indicates the artistic and decorative possibilities, as well as utilitarian advantages and protective features of exterior lighting. This booklet will be mailed free upon request by addressing the Association, 420 Lexington Avenue, New York.

* * *

What Price Wiring?

It is the practice in some office buildings for the owners to make all alterations and changes and bill the tenant. The work is done by the janitor or an itinerant electrician. Recently in Chicago a dentist had a door switch and three buzzers installed and he was presented by the owner with the following itemized bill:

1	Edw. door switch No. 38	\$12.00
3	" No. 1 Buzzers	36.00
2	" No. 620 Push Buttons	10.00
5	Low Tension outlets	10.00
17'	Tile cutting	9.35
17'	Plaster cutting	6.80
24'	¾" conduit	7.44
4'	Col. Conc. cutting	3.80
9'	Brick cutting	7.20
26'	Tile cutting	14.30
240'	No. 16 Wire	8.40
		\$125.29

And still they say electrical contractors are high!

* * *

1928 Code for Youngstown

One of the first cities to adopt the 1928 Code in its entirety is Youngstown, Ohio. The new Code went into effect on November 10.

* * *

Window Displays Feature Lighting Equipment

The Artistic Lighting Equipment Association is furnishing all concerns handling lighting equipment, a set of five window and store display cards lithographed in colors. Also a set of two Christmas cards or signs for the showroom calling attention to lamps and lighting equipment for Christmas gifts. These displays are furnished for less than the actual cost of production. They may be secured by writing the Merchandising Dept., 711 Graybar Bldg., New York.

THE WIREMOLD CO. PRESENTS
"W B B"

AND HIS BUSINESS BUILDING AIDS

An increasingly important factor in electrical market development

How the WBB makes money for himself and helps everybody in the industry

THE electrical contractor who makes money makes it in two ways. First, he makes it by doing a good job of wiring at the least cost and a fair price, netting him a good profit.

Next, he makes money by getting more business—upon the strength of good work already done. Two kinds of business:

1. *More wiring business from the friends and acquaintances of customers pleased with wiring jobs.*
2. *Merchandise sales resulting from his contact with these pleased customers and their friends.*

Most electrical contractors find the use of Wiremold saves time and cost of installation, results in a better job of the work, pleases customers and paves the way to new business.

Hence the name "WBB"—"WIREMOLD BUSINESS BUILDER"!

Since the wiring job is the neck of the bottle through which must come all further sales of electrical merchandise and subsequent electrical service, consumption of electric current, the "WBB" therefore is a mighty factor in industry progress.

The fact that he is a "WBB" means he brings to his job and his function in the industry a kind and degree of intelligence which encourages and facilitates freer use of electrical conveniences on the part of the public.

It pays the electrical contractor to become a "WBB" because he thereby makes more money and builds more securely and permanently for the future.

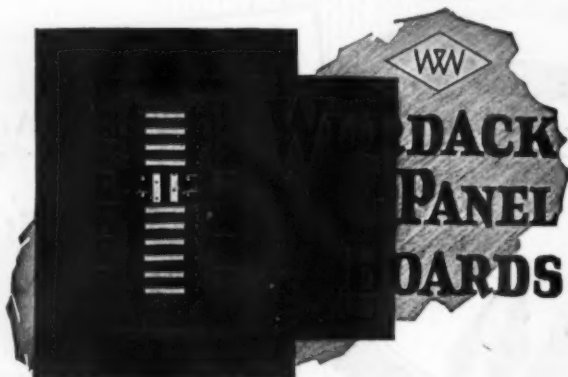
And it pays every factor in the industry—jobbers, manufacturers, central stations—to promote the process because "WBB" success is all-industry success.

Copies of the WIREMOLD BUSINESS BUILDER, our monthly sales service, together with other literature descriptive of the Wiremold line and its sales possibilities, will be sent on request.

THE WIREMOLD COMPANY
HARTFORD, CONN.

EXPECT GREAT THINGS

*in the improved
sectional type*



*They will measure up to
your expectations*

Inbuilt quality and superior design have always characterized Wurdack Panel Boards. But these improved sectional panels, with their many advanced features, set a new standard in panelboard construction. Consider these outstanding features:

- ⌚ All parts are removable from the front. Ready access is provided to switch mechanism and fuse connections. It is especially easy to replace copper shell or contactor screw when these become badly burned from short circuit or heavy overload.
- ⌚ All new tumbler switches are rated 30 ampere, 250 volts and are heavy duty type, with mechanism and contact parts capable of most severe service. Single pole tumbler switches are equipped with Bakelite arc snuffers lengthening life and increasing breaking capacity. Blades are self aligning with contacts. The entire steel frame and switch mechanism is thoroughly rust-proofed.
- ⌚ Entire back of sectional panel is covered with a continuous steel plate, which guards against injury during installation, and always keeps mechanism of switches free from dust and dirt.
- ⌚ Panel is secured in cabinet by means of four special mounting studs, which permit adjustment both in-and-out and laterally. The arrangement is such that adjustment can be made after panel is installed without the use of any special tools.
- ⌚ All-steel fronts, of heavy gauge sheet, are smooth and flat and carefully finished in genuine black lacquer. Easy to keep clean and neat in appearance.

Assure satisfaction to both your client and yourself by installing Wurdack Panel Boards on your next job. Investigate their merits . . . Write for latest catalog.

W M WURDACK
ELECTRIC MFG. CO.

4444 CLAYTON AVE., ST. LOUIS, MO.

Rooney Heads Cincinnati Electric Club

E. S. Rooney, district sales agent for the Youngstown Sheet & Tube Co., Cincinnati, has been elected president of the Cincinnati Electric Club. The club is divided into divisions covering radio, wholesaling, manufacturing, etc., each with its own president and board of directors.

* * *

Uniform Electrical Ordinance

Among the cities in which electrical code revisions are under way at the moment are Baltimore; Grand Rapids, Michigan; and El Paso, Texas, according to Harry B. Kirkland, director of the Uniform Ordinance Department of The Society for Electrical Development, Inc.

He also announced that the following seven cities in North Carolina originally adopted the Uniform Electrical Ordinance; Asheville, Raleigh, Greensboro, High Point, Charlotte, Winston-Salem and Salisbury.



**CHAIN
SUPPORT**

CONDUIT



Chains Support Long Conduit Runs:—These supports prove valuable time and material savers on this form of construction. Insert is detail of chain connection at conduit.

H&H in the CHANIN BUILDING

42ND ST. & LEXINGTON AVENUE
NEW YORK CITY

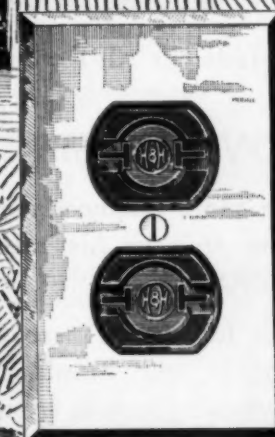
Chanin Construction Company
Builders
285 Madison Avenue,
New York City.

Architects:
Sloan & Robertson:
Engineers:
Clark, Mac Mullen & Riley

Electrical Contrs:
Edwards Electrical Construction Co.
Switches: H&H No 1611
Receptacles: H&H No 1494



THE FOUNDATION
OF AN ENDURING
LIGHTING SYSTEM
IN GREAT BUILDINGS
AND SMALL



THE HART & HEGEMAN MFG. CO.
HARTFORD, CONN. MAKERS OF ELECTRIC SWITCHES SINCE 1890



Outdoor Floodlights

THIS gigantic reflector is for two 1000-watt lamps; throws an extremely wide spread of light without a blinding glare; is used for lighting great open spaces—stadiums, skating rinks, parks, tennis courts, railroad yards, et cetera—and is but one of a number of floodlighting units we manufacture.

Other Kliegl Lighting Specialties

Borderlights
Cove Lights
Footlights
Color Lighting

Exit Signs
Aisle Lights
Step Lights
Auto-Calls

Floor Pockets
Wall Pockets
Panel Boards
Dimmers

Floodlights
Spotlights
Music Stands
Scenic Effects

for Descriptive Literature write

KLIEGL BROS

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.

321 WEST 50th STREET

NEW YORK, N.Y.

Estimating Branch Circuit Wiring

(Continued from page 27)

where it is stated that the wiring in the basement is rigid conduit, Method 3 is referred to, i. e. all circuits leave the cutout box in conduit and all other wiring in the basement is in conduit.

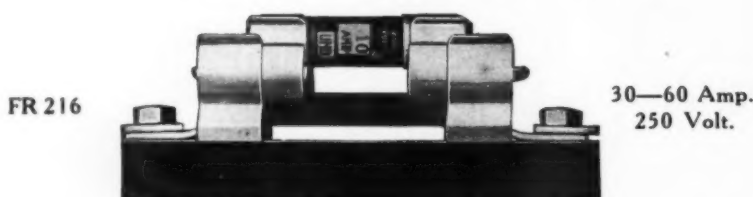
The new Code rules for lighting and appliance branch circuits will apparently make little difference in house wiring practice. These rules permit one or more portable appliances, each rated at 6 amp. or 660 watts or less, to be connected to any lighting circuit or any combination lighting and appliance circuit, provisions which are much more liberal than those of many municipal codes. The data presented here applies only to what the Code describes as "Lighting and Appliance Branch Circuits," i. e. circuits that supply both lighting outlets and appliance or convenience outlets. These circuits commonly supply 10 to 12 outlets and there is no restriction on the loading other than that the load, which may reasonably be expected, must not blow a 15 amp. fuse.

Attic Light

In tables giving costs data for various types of wiring, a special item has been made of a single outlet in the attic on account of the excess material used for such a case. If there are two outlets in the attic, one should be figured at the special rate and the other at the regular rate for ceiling and bracket outlets. If there are finished rooms with several outlets in the attic, all may be figured at the regular rate. In arriving at these cost prices an effort was made to use material prices somewhere near actual costs to the contractor. Labor was figured at an average rate of \$1.10 per hour. The rate per hour used as the cost of labor must in every case be the average rate paid. If the contractor makes a practice of using only journeymen on house wiring and the scale paid is \$1.25 per hour, this amount is the average cost. If it is the common practice to use a journeyman and helper and the rates are \$1.30 and 90c per hour, respectively, the average rate will be \$1.10 per hour.

When rigid conduit is used in the basement there will usually be two or more main lines of conduit carried

Fuse Reducers



Made for All Reductions 250—500 Volt

Approved by Underwriters Laboratories.

OVER FUSING IS A HAZARD

Obtain more business and your customer's confidence by calling this to his attention and supplying **FUSE REDUCERS**.

Provide for future increase in load by ordering distributing boards with ample circuit capacity and properly protect wires or motors by means of **FUSE REDUCERS**.

THE PLAINVILLE ELECTRICAL PRODUCTS CO.

Plainville, Conn.

THE "successful" bidder thinks he has won the battle.

The customer thinks he himself has won the battle.

The losing bidders are the only ones who know for a certainty that they haven't won anything.

Actually they all have lost something. Actually, they always will, in any battle for a job in which the "sharpened pencil" figures.

Contractors, themselves, think so

That seems to be the growing opinion among all progressive electrical contractors who have given any thought to the subject.

They reason it out this way:

Certainly a profitless job is no help to a contractor.

The only possible gainer is the customer.

Yet the very first risk the customer runs is the substitution of inferior material or workmanship or both.

And, even assuming the customer can take care of himself on that point or that the contractor is conscientious, at the end of every profitless job, there is one contractor that much nearer extinction.

The cumulative effect of many such jobs is to discourage, or eliminate, quality electrical work entirely.

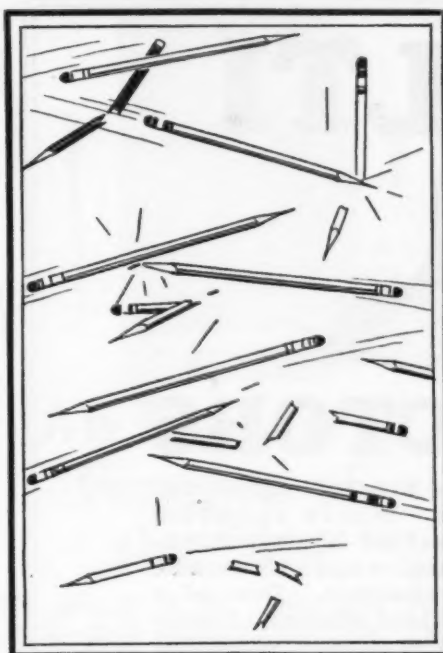
In the last analysis, then, does the customer really win?

And can anything be done about it?

Placing the blame for the "sharpened pencil" is, of course, one thing; and curing the condition is another.

It remains to be seen whether that peculiar and obdurate person, the customer, will see the error of his ways and mend them.

The attempt to answer that brings



The battle of the sharpened pencils

— which no one wins!

Maybe somebody is winning "price" battles for contracting business — but many electrical contractors are coming to think that this is not so.

Their thinking leads them to the conclusion that perhaps the battles ought to stop—and gives them an important clue as to how to stop them.

us to a very interesting, though simple, fact: Electrical contractors are customers.

They, and their wives, are part of that great American public which in recent years has been shown how to spend its money for conveniences

and quality in almost every direction.

They fight shy of shoddy stuff in the things they buy. Mr. Contractor buys good gas and oil for his car. He accepts, almost automatically, the idea of the "two car family". (Be it noted, that "the full garage" and not "the full dinner pail" has even become a feature of a Presidential campaign). Mrs. Contractor responds to all possible current appeals to her taste and pocketbook from "color in the kitchen" to her next fur garment.

Based on his own reaction as a customer, even the skeptical contractor may come to the conclusion that "the customer can be shown" . . . once an industry makes up its mind to show him.

There are evidences that this industry has made up its mind. There are contractors deliberately turning down cut-price work—and thereby building up large businesses on their sound, courageous attitude. There are contractors everywhere doing their part to spread the gospel of quality work.

This Company, too, has long assumed its share of responsibility for telling the contractor's story to the American public in its own advertising; and for maintaining, in the 60,000 electrical items it distributes, the high standard of quality that leads to satisfactory electrical work.

No. 5 of a series dealing with the every-day problems of the electragist.

Graybar

Successor to Western Electric Supply Dept.



The Graybar Tag—
symbol of distribution

MULTI



REFLECTORS

Of porcelain enameled Steel. In all standard types and sizes. White enameled coating makes for perfect illumination. Proof against rust, dust, vapor or smoke fumes, atmospheric changes. One of a wide variety of practical electrical wiring devices. Special feature: reflector sockets complete with adjustable sockets.

JUST OUT—REFLECTOR BULLETIN No. 6
Send for it now

Multi Electrical Mfg. Co.
210 No. Ogden Ave., Chicago, Ill.

out from the cutout box and these will be so located in the basement that any basement outlet can be reached with a short additional length of conduit. It is evident that as the conduit work displaces a part of the knob and tube or armored cable work, as the case may be, the quantities per outlet used for the latter class of work will be slightly less. The feet of conduit used for the main runs in the basement is found to be quite closely proportional to the number of circuits. Therefore a cost for the allowance per circuit is given in the tables, which must be added to the outlet costs.

Sheathed Cable Costs

Many contractors will be interested in knowing the cost of house wiring with non-metallic sheathed cable as compared with other types of wiring. In the first place it should be noted that the cost of the service is the same, regardless of the type of wiring used for the branch circuit work. As has been shown, November issue, page 22, a conduit service under ordinary conditions will cost from \$15.00 to \$23.00, approximately. As compared with an armored cable installation, only two items can be affected by substituting non-metallic cable—the cost of the cable itself and the cost of labor.

In a city where an investigation of wiring costs was made recently, and where freight charges should be slightly favorable to the non-metallic cable, contractors reported costs as \$2.00 per 1000 ft. less for non-metallic than for armored cable, this difference being the same for both the 2-conductor and 3-conductor types.

Data so far secured on the relative labor costs for installing the two types of material is not sufficiently complete to warrant a comparison in terms of definite figures. Some contractors believe there is no difference; others consider that slightly less labor is required to install the non-metallic cable. It is probable that under equal conditions of skill on the part of the workmen and familiarity with the material, the non-metallic cable will require slightly less labor than armored cable, the difference being on the order of 5 per cent to 10 per cent.

The figures here given are only prime costs to which must be added a suitable percentage for overhead

industry. And very nearly
that D & W quality is indispen
Not surprising when you consider how
& W has been ... A lot can
earned in a ... W has learned
t. So have ... industrial plants
the railroad ... companies,
the paper ... manufacturers
and innu ... have been
using D & W ... every indus-
try in Ame ... uses to pro
ect its most ... machinery; an
ightly. Those ... guardians of t
achinery. How faithful they are to their tr
in the long record of their perfor
rd is a record of practically
Whatever a fuse can do

D&W
FUSES

are among the 60,000
items distributed by
Graybar

OFFICES IN 71 PRINCIPAL CITIES

EXECUTIVE OFFICES:

GRAYBAR BLDG., LEXINGTON AVE. AND 43RD ST., NEW YORK, N. Y.



An Exclusive
Feature of
the New
SQUARE D

P A N E L B O A R D

All Molded Parts in GENUINE BAKELITE—Set New Standards
of LIGHTNESS, STRENGTH and DISTINCTIVE APPEARANCE

EVERY one of the 21 molded parts on the new Square D panelboards—as well as all circuit numbering buttons—are made of genuine Bakelite. This is an exclusive Square D feature. ¶ Because Bakelite weighs less than almost any other material that could be used for the purpose, Square D panelboards are considerably lighter than other panelboards. Because Bakelite is one of the strongest, toughest molded materials known, it increases the strength and durability of Square D panelboards. And because these Bakelite molded parts are richly finished in walnut, Square D panelboards possess an unusual distinction of appearance. ¶ Two other exclusive Square D features—chromium-plated handles and panel trim adjusting screws, and attractive olive green dull finish on the standard trim—contribute materially to this fine appearance. ¶ An advantage of special importance in industrial use is the quick and easy interchangeability of plug fuses and cartridge fuses. Main switches of 60, 100 and 200-ampere capacity are of the Square D improved brush type, with exceptionally quick break—a new and exclusive design. Although the number of box sizes needed has been reduced, the line is *complete*—meeting every requirement of industrial service. You may obtain quotations and all desired information from jobber representatives and Square D district managers.

SQUARE D COMPANY, DETROIT, U. S. A.

FACTORIES AT: DETROIT, MICH., PERU, IND.

BRANCH	OFFICES
Boston	Birmingham
New York	Syracuse
Philadelphia	Buffalo
Baltimore	Pittsburgh
Richmond	Grand Rapids
Atlanta	Cleveland

SQUARE D

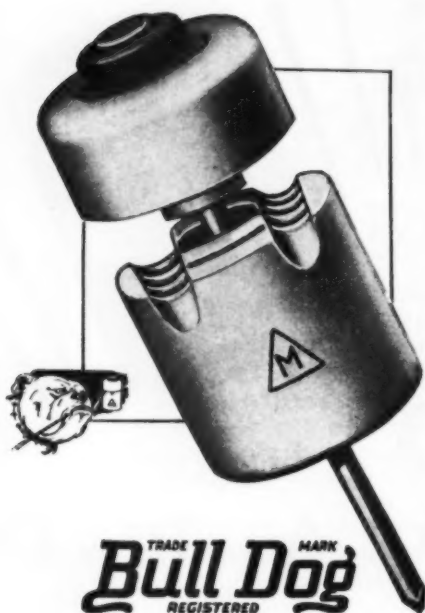
ELECTRICAL EQUIPMENT



BRANCH	OFFICES
Cincinnati	Kansas City
Chicago	Dallas
Milwaukee	Denver
Minneapolis	Los Angeles
Indianapolis	San Francisco
St. Louis	Portland

(187)

"It has a grip like its namesake"



Split Knobs

THESE are the safe, approved knobs for all types of residence wiring. They mean better jobs at no added cost. Bull Dog Split Knobs, together with Illinois Porcelain Tubes, Cleats, Solid Knobs and Reversible Square Split Knobs, form a complete line of standard porcelain.

Sold Through Wholesalers.

Illinois Electric Porcelain Co.
Macomb, Illinois

and profit. The contractor should always determine his own overhead expense; it is not safe to make use of average overhead figures in deciding upon the proper markup.

Table 28 is summarized figures for house wiring as done in an eastern city with rigid conduit in the basement and flexible conduit above the basement. A slightly different method of analysis was used in compiling this data, resulting in a progressively higher cost for load outlets on the first, second and third floors. This method is of doubtful advantage because there are so many unit figures to be used in estimating. However, this data checks very closely with actual costs. It is given here for the purpose of comparison with the costs of other types of wiring.

Table 29 gives all necessary data for computing the costs of ordinary bell work, such as is commonly included in house wiring jobs.

Comparative Costs

Questions are often asked as to the comparative costs of different types of wiring. It is practically impossible to secure cost records of actual installations made with different types of wiring which can be directly compared with one another. Attempts have been made to secure such records but they have always failed. The difficulty is that in nearly all cases one type of wiring and one only is employed in one city. The workmen may become very proficient in installing this type and costs may be reduced to low figures; but with different and unfamiliar materials they are unable to reach a reasonable rate of production.

In compiling the data presented here it has been the intention to arrive at figures for the labor which represent efficient work and so far as possible to base all data on a uniform basis of efficiency so that the labor data for the different types of wiring will be fairly comparable. Fair comparisons of costs can only be made by computing the costs of complete typical jobs, including the service, using the data in these tables and correcting the material costs and rate of wages according to local conditions.

* * *

Taking "Shun" Out of Competition

(Continued from page 16)

the form of a club, known as the Kilowatt Club, with a clubhouse on the shore of beautiful Lake Monona, just twenty minutes by auto from the city.

Because the clubhouse was built by their own hands, the members are taking a keener delight in enjoying it than they might have had it come to them ready made. They cleared the site, laid the foundations, put up the framework, laid the floors, built the chimneys, plastered, shingled and wired it themselves. And then as the building was nearing completion all of the mechanics working for the members turned out one Saturday afternoon and worked side by side with "the boss", helping to put on the finishing touches.

One of the members, L. W. Burch, the secretary of the club and an artist of considerable ability, deco-




Value of Good Will of Other Trades:—The carpenters may be persuaded to place a section of the sub-base board ahead of time to make a solid backing for the convenience outlets as shown.



Type "C" SAFETY SWITCH


A Good Allround Switch and a Good Seller

The  Type "C" Safety Switch might well be called the all purpose switch.

It is particularly designed for use in lighting loads or for industrial use where conditions are not as severe as to require our Current Breaker type.

A quick make and quick break feature always assures positive contact. The reduced size of the units gives ample wiring space and the sturdy handle allows easy operation.

No better safety switch in this class is made and this is indicated by the volume of sales.

Write for  Manual on
Safety Switches

Contractors:—
Our Safety Switch and
Knife Switch lines are
complete for every pur-
pose.

We now offer a com-
plete line of Panel and
Switchboards.

Trumbull-Vanderpoel Elec. Mfg. Co.
BANTAM, CONN.

Pittsburg

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Philadelphia

Atlanta

Denver

On the Pacific Coast—C. Dent Slaughter

Boston



SAFETY SWITCHES



MARION

Wires,
and



Cables
Cords

The highest standard in rubber and varnish cambric insulated wires, cables and cords characterizes the MARION line, as symbolized by the eagle trademark. Our chief items are Lead Covered Parkway and High Voltage Cables, but a full line of common types is available for immediate shipment. This includes Rubber Covered (solid or stranded) Conductor, Non-metallic Sheathed Cable, Lamp Cords, Reinforced Cords, Security flex all Rubber Cord, and Telephone Wires. Special wires to order.

The line also includes:

Weatherproof Wires	Flame-proof Cables
Annunciator Wires	Pothead Wires
Switchboard Cables	Stove Wires
Locomotive Cables	Stage Cables
Automobile Cables	Packing House Cables
Mining Machine Cables	Brewery Cords
Varnished Cambric Cables	Deck Cables
Fixture Cords	Border Light Cables
Heater Cords	Elevator Cables
Nitro Cords	Canvasite Cords
Office Wires	

MARION INSULATED WIRE AND RUBBER CO.

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355 Everett St.

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395 Ellicott Square
San Francisco Office,
274 Brannon Street
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NEW CODE TRANSFORMERS

with CONDUIT CONNECTIONS



According to the
new 1928 National Code
balance coils are not permitted
to supply lighting and appliance
circuits.

SORGEL AIR COOLED TRANSFORMERS

meet all requirements of the code.
Made in sizes $\frac{1}{4}$ to 50 K.V.A. for
550, 440 and 220 volt service. Single, two and
three phase.

Send for Descriptive Literature

SORGEL ELECTRIC CO.

Clybourne and West Water Sts. MILWAUKEE, WIS.

rated the interior and painted a frieze around the inside of the club room depicting Lake Monona scenery and the history of this country.

During the summer months each member of the club has the use of the house for himself and family for a week at a time, the time of its occupancy being drawn by lot. A member of the club also may give a party for his help and many have taken advantage of this privilege by taking their entire office and working force to the clubhouse for an evening of supper and entertainment.

It has turned out that Kilowatt meetings are purely social, no shop talk being allowed. The business association is the local Electragist Chapter which holds its meetings in a hotel downtown.

Thus, by working together, by having a common financial interest in a piece of property, by playing together, the electrical contractors of Madison who are members of the Kilowatt Club have learned the benefits of constructive competition.

According to Mr. Burch, "The object for which the clubhouse was intended is being realized and is worth all it costs. Besides that, the property has proved a financial benefit as it is worth more than double what it cost in money.

"We will be very glad indeed to have any visiting electrical contractors or others engaged in the electrical business make themselves known upon their arrival and we will take them over and show them the Kilowatt Club of which we are all so proud."

The officers of the club are: President, Otto Harloff, of the Harloff-Loprich Electric Company; vice president, Orvin T. Havey, of the Blackhawk Electric Company; secretary and treasurer, L. W. Burch, of the Electrical Supply Company.

* * *

Chicago Stadium to Have 40,000 Watt Lighting Canopy

A new type of lighting canopy has been designed for the ring at the new Chicago stadium which will open in February, whereby the fighters will be protected against the heat generated by the ring lighting canopy. The canopy will have units with an aggregate rating of 40,000 watts. Around the canopy will be a system of electric fans to remove the heat generated by the lighting.



J. L. Hudson Company, Detroit, Michigan, where the electrical wiring is permanently protected by Youngstown Buckeye Conduit. Architect: Smith, Hinchman & Grylls. Electrical Contractors: John H. Busby Co. and McCleary-Harmon Company.

Conduit

that is

time-tried

and

service-tested

Youngstown Buckeye Conduit serviceability is a known quantity. It has a background of performance which gives eloquent testimony of its absolute dependability.

Building after building from coast to coast is demonstrating the fact that Youngstown Buckeye Conduit has all of the features that make for the utmost in conduit. It is tough and rigid—made of the finest grade of steel—yet it bends easily without danger to weld or enamel. It has a durable electro-galvanized or enamel coating, and it is exceptionally easy to thread.

Whether for service in power plants, factories, mills or any type of commercial building, Youngstown Buckeye Conduit gives the utmost assurance of a satisfactory installation. For that reason Youngstown Buckeye Conduit sales far exceed those of any other.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

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SEATTLE—Central Bldg.
ST. LOUIS—1501 Locust St.
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LONDON REPRESENTATIVE—The Youngstown Steel Products Co.
Dashwood House, Old Broad St., London, E. C. England

YOUNGSTOWN-BUCKEYE

CONDUIT

There's Money in it-- Ask for CST Fittings--

and here's why---

When you reach into a box of CST Fittings you pick out a good one every time. They are all made that way—Made for you to *use*, not to *try out and throw away*. Perfect threads, heavy galvanizing, big slots in the set screws—all the things you appreciate. And you can get immediate delivery on your orders from jobbers stocks in practically every city. Try it and see.

**CHICAGO STEEL
TANK CO.**

Electrical Division

6400 W. 66th St.

CHICAGO - ILLINOIS



Poughkeepsie to Have Electrical Board

Poughkeepsie, N. Y., has a newly created electrical board to enforce the local ordinance. As soon as the board is organized, all electrical contractors will be compelled to take out licenses.

* * *

Let's Help Mother Get the Kids Out of Bed

"Will-e-e! Will-e-e! Get up now or you'll be late for school! Will-e-e, do you hear me? W-I-L-L-I-E!!!"

"Yes, Ma, I'm coming."

This little skit is probably enacted every morning in 99¾ percent of the homes where there are school children. Besides Willie, there are sometimes Eddie, and Bernice, and Arthur and Clarence and Effie and—

This thing has been going on ever since there were any schools, and the wear and tear on Mother's nervous system is something terrific. The electrical industry has long boasted of what a lot it has done to provide comfort and convenience for the housewife, but in our opinion it hasn't touched the real problem. We refer to the job of getting the kids up in the morning.

Why not wire a big, silvery-toned gong in every bedroom hallway, with a button handy to the kitchen stove? Or better yet, connect it to a synchronized electric clock? Ought to be no trick to sell. Just commit to memory some such spiel as this!

"Madam: Punctuality is one of the Seven Sovereign Virtues. Punctuality is a most prized quality; it leads to riches, fame and power. Punctuality enabled Washington to cross the Delaware and defeat the Hessians. For want of Punctuality, Napoleon lost the battle of Waterloo and with it his Empire. Training in Punctuality should begin when the child is young. The first training should be to require him to arise punctually in the morning, and though he be ever so rebellious at first, he will soon yield to the insistence of our electric gong. He will form the habit of Punctuality and it will stay with him for life. So you see, Madam, if you want your son to become a great and honored man, you should have this electrical call put into your home. I'll just write it into the specifications. Sign on this line, please. Thanks."

Electrical League of Toledo.



MURLIN



No. 1405

The extensive use of exterior ornamental lighting on Gasoline Stations demands the proper set up.

Murlin's Catalogue 4-A will give you complete information for this as well as exterior lighting for every purpose.

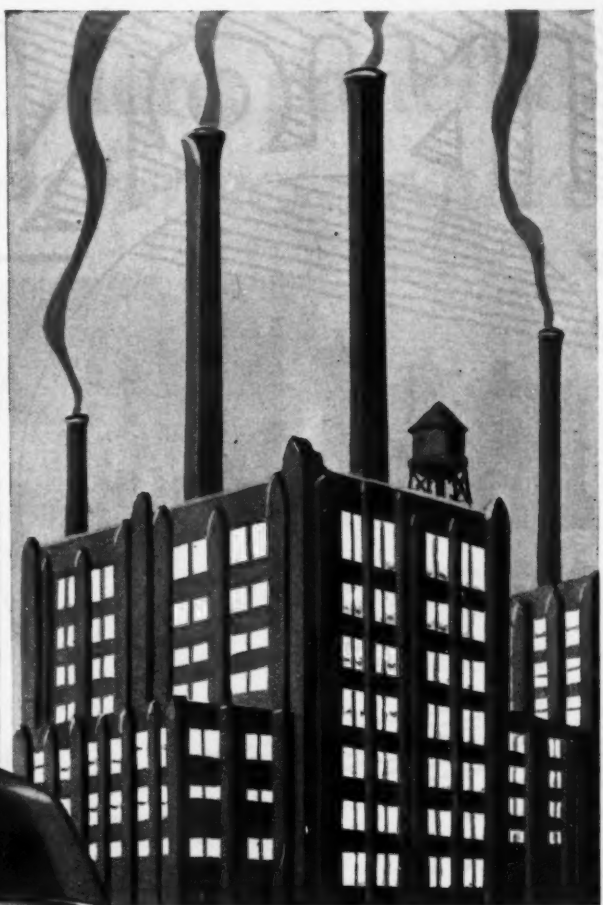
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Manufacturing Company

5420 Paschall Avenue, Philadelphia



*Serving
the World's
industries*



Wheeler Durex Reflectors

Correct illumination — one of the most powerful factors in modern industrial efficiency! Its highest development is represented in Durex construction, the achievement of Wheeler Engineers. In every type of industry, from roundhouse to textile mill, Durex Reflectors are making possible increased production, reduced costs and

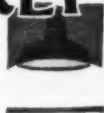
greatly improved efficiency. More than this, the installation and maintenance costs of lighting equipment have been reduced to a minimum by the easy installation and low upkeep charges that only Durex allows. Our nearest office will gladly give you complete Durex information—why not write for it today? It will more than repay you.

Durex construction embodies the patented Wheeler screw ring construction. Only 3 simple operations required for installation—socket is fastened to canopy by screws fitting into bayonet holes, porcelain socket shell screws on and off easily thus exposing contact screws for ready wiring, and reflector is quickly attached to canopy. An aluminum

screw ring provides a cushion grip on the porcelain enameled thread of the reflector. No washers, set screws or yokes are required. Durex construction is available with four different types of reflectors, designed to meet the varied lighting requirements of the industrial world.

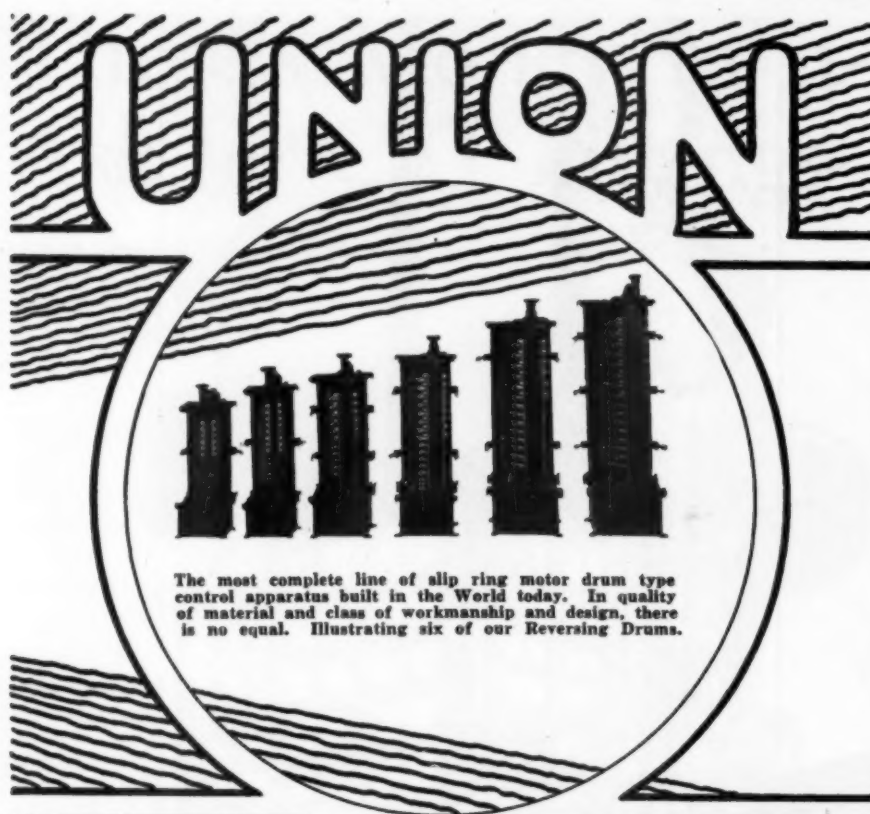
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275 Congress St., Boston, Mass.
New York Atlanta Cleveland



Sales Offices: St. Louis, Indianapolis,
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UNION ELECTRIC MANUFACTURING Co.
MILWAUKEE, WIS.

One Size Connectors for All Common Wiring Joints **IDEAL** Universal Wire Connectors



One size fits all common wiring joints.
Spiral Metal Insert affords grip of steel and gives joint double carrying capacity.
Made of highest grade, fireproof molded composition.
A better electrical joint.
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New Low Prices

Write for Free Sample

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Sycamore, Ill.

1228

Please send samples, new prices and complete information regarding Ideal Universal Wire Connectors.

Name
Address
City and State

Multiple Dwellings Red Seal Rules

New specifications for Red Seal wiring in apartments and duplex houses have been developed by the Milwaukee Electrical League. Location and number of outlets in living quarters are the same as for individual homes.

For duplex houses, the service mains and entrance switches are to be of sufficient capacity to accommodate a heavy duty load in each flat regardless of whether occupants mean to make immediate use of heavy duty appliances. The minimum will be three No. 2 wires in 1½ in. conduit and two 60-amp. service switches, i. e., one for each flat.

For dwellings in excess of two families, the following minimum requirements were established to provide the owner with the assurance that the building will not become obsolete in a few years because he cannot install electric ranges:

1. That the main service wires and main service switch be installed with a capacity large enough for all of the lighting load plus one seven-kilowatt range for each apartment.
2. That sufficient space be provided in the meter room for a 60-amp. meter switch and a 60-amp. branch cutout for each apartment to facilitate future installation.
3. Conduit risers only be installed from accessible points in the basement ceiling to range outlets in each kitchen. These risers to be of sufficient capacity to accommodate the wires required for the ranges specified in paragraph two.
4. The sizes for the main service and branch circuits be based upon the calculations given in Section 613 in the Revised National Electrical Code of 1928.

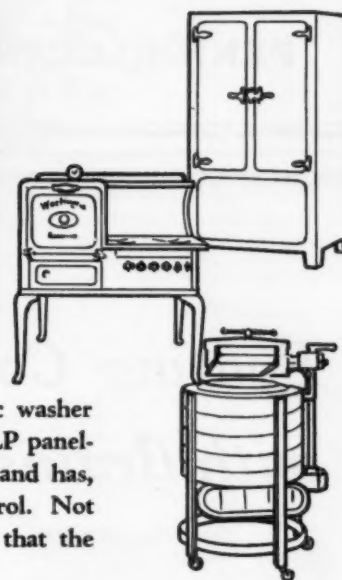
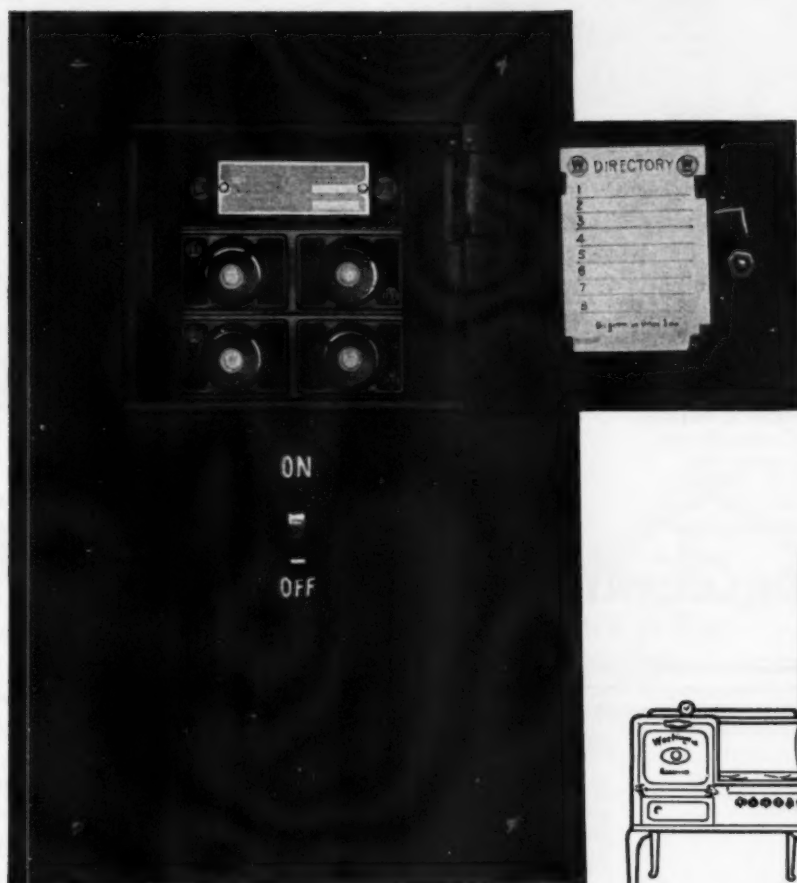
* * *

Valuable Dealer Pamphlet

Cooperating with the Division of Domestic Commerce, United States Department of Commerce, the Association of Electragists has distributed to its members copies of a pamphlet prepared by the Department entitled "Practical Aids to the Independent Merchant," outlining many valuable helps for the merchant.

The booklet describes the cooperative activities of the Department of Commerce in collecting authentic information of value to the independent dealer, with a list of its many publications covering particular merchandising problems, such as stock control, turnover, store management, location, etc. Electrical contractors operating retail stores will find this pamphlet worthy of careful study.

Here is the modern panelboard *that modern homes require*



THE modern home, with its refrigerator, electric range, electric washer and other home labor-saving devices, needs the Westinghouse CLP panelboard which provides facilities for fusing all 110-220-volt circuits and has, also, a heavy duty type 60-ampere tumbler switch for range control. Not only are today's appliances provided for, but the electrical helps that the future will bring can be taken care of by this panelboard.

The CLP panelboard, with its flush-type trim that can be decorated to match the surrounding walls, can be located at any convenient place without detracting from the appearance of the room.

Contractors can use the CLP to obtain a bigger and better wiring job. Let the Westinghouse panelboard specialist show you how.

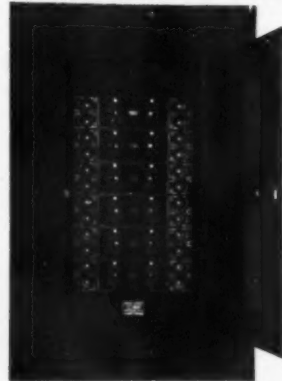
Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania

Sales Offices in All Principal Cities of
the United States and Foreign Countries

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Westinghouse

New Style Penn Security Moulded Type Safety Panels



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1528 S. Union Ave.,
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Main Office and Works:

PENN ELECTRICAL COMPANY

IRWIN, PA.

Beating Competition with Brains

Competition is tough in the electrical contracting business these days; and every day it gets worse. Successful contractors have found they can beat fly-by-night competition best by using their brains, and by educating their responsible employees. You can help your head men to keep abreast of the times and save you money by sending each his own copy of ELECTRICAL CONTRACTING.

How to Judge Credit

When a contractor wants a line of credit for material used on a certain job, what does the jobber want to know about: 1—The contractor's credit; 2—The owner's credit; 3—The job?

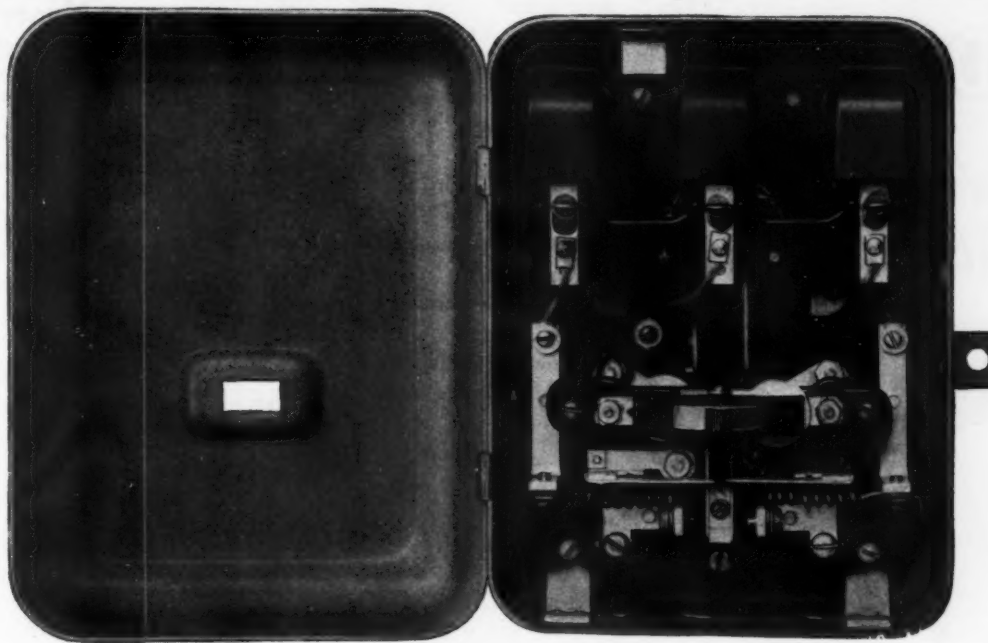
These questions have been answered for the Building Material Dealers' Credit Association of Los Angeles by the following questionnaire. Electrical contractors can profit by this information. They can check themselves up and determine their own credit rating, but better, here is a guide for them to follow in checking up on the credit of prospective customers.

What about the Contractor?

1. Does he know the building business or depend on a foreman?
2. Credit and financial responsibility. Has he had liens against him? Suits? How has he paid his bills to others?
3. Is he likely to pay bills if owner fails to pay him?
4. Is he acting only as owner's agent without assuming responsibility for payment of bills?
5. Is he a local man?
6. How long in Los Angeles?
7. Has he given you a long or short form financial statement?
8. If partnership, has trade style been filed so as to establish names of parties in partnership?
9. Is the contractor incorporated and if so, who are controlling the stock and would be liable in case of trouble?
10. Can he get labor and material bonds from surety companies on his jobs?

What about the Owner?

1. Credit and financial responsibility.
2. Is he a local man or company?
3. If partnership or firm, who is in it and is trade name registered to establish the responsible parties?
4. If corporation, names of stockholders and their interest. How much money paid in?
5. Who holds title to property to be built on?
6. Have you had a property search made to confirm ownership?
7. Is the owner known as a speculative builder or a conservative operator? What is his past record as to accomplishment? How have his past jobs turned out?



Another Diamond Magnetic Switch

[IMPROVED TYPE KXR]

AGAIN DIAMOND E presents an Improved Magnetic Switch—Type K X R. Exclusive in design, it has many special features that make it the desirable magnetic switch for single and polyphase Induction Motors. It answers the need for a compact, trouble-proof switch.

With utmost compactness and convenience Type K X R Switch offers the greatest economy in installation and service ever achieved in a magnetic switch. Its refined design and careful manufacture insure perfect operation for all services.

These very desirable features are included in K X R: Panel Base and Arc Shields of Bakelite, extremely light and durable. Big copper contacts; large wiping action. Connects directly *across-the-line* in starting. Inverse time limit and thermal overload relay with interchangeable heating elements. Lever of brilliant red Bakelite set integral with the panel. Small in size—only 3 supporting screws necessary. Handsome drawn cabinet finished in black, baked enamel. No sharp corners.

K X R Improved Type Magnetic Switch effects a substantial saving in *space, time and labor* on any Induction Motor installation.

Price list and complete Specifications, including Wiring Diagrams, upon request.

Special Features

Easily Removable Panels
The K X R panel may be removed within a few seconds—immediate accessibility at all times.

3 Times Ordinary Wiring Space
Extra large wiring space *behind* the panel makes installation and servicing many times quicker and easier than old-style switches.

Knock uts on All Sides and Back
16 Knockouts on back and sides to meet *every* wiring requirement.



Just the Size of Your Hand
Your outspread hand easily covers the K X R Switch. It can fasten right on the machine it operates. Smaller than most switches but has three times greater wiring space.

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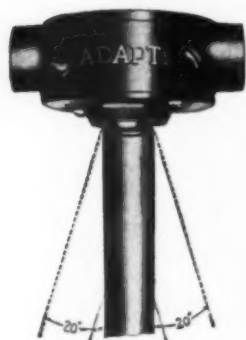
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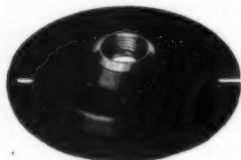
ADAPT*i*

Self-Aligning Fittings



Cover installed, showing range of swing, 20 degrees in any direction.

SOMETHING you'll be glad to have ready, next time sloping or uneven ceilings and rigid pendants come together on the same job.



Type No. 54-82



Type No. 1000

Write for Catalog 107-A

The ADAPT*i* Co.

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NEW YORK CITY

A. Stone, 112 East 23rd St.

PHILADELPHIA

Craven Electric Sales Co.,
30 Bank Street

SOUTH BOSTON

The Hastings Electric Sales Co.,
42-50 Binford Street

8. Has he had actions filed against him? Any liens? Any suits? Any judgments?

What about the Job?

1. Who owns the property?
2. Appraised value? From selling standpoint as is in present market.
3. Market for buildings such as proposed. Sale or rent?
4. What is the amount of the first mortgage loan?
5. What is the amount of the second mortgage loan?
6. Any other incumbrances?
7. Have you had a search made covering ownership?
8. Is the job bonded by a surety company?
9. Kind of a bond and to whom?
10. Is there a labor and material bond? (This is the only bond that directly protects the materialman.) (Do you think you are justified from a dollar standpoint in selling or depending on surety bond *only* considering possible delay in settlement under bond without any interest on money?)

11. Is the junior financing provided for and how?

12. What guarantee is there that the money from loans will be used on *this job*?

13. Can you obtain order on loan company and have it accepted? Which loan?

14. Is the loan company responsible and reliable and do they pay orders without "stalling?"

15. Character and reputation of people promoting job.

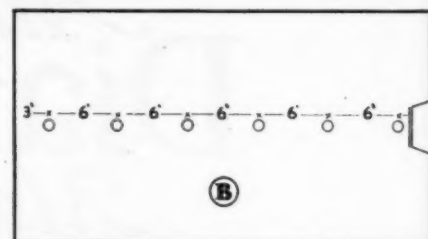
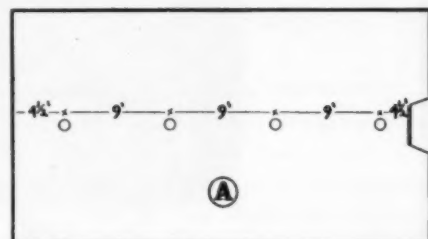
16. Who is going to *pay you*? Whom are you selling?

17. If you take paper and have difficulty in selling it or if your capital is tied up in a lien, is there any profit in job for you when you have to borrow at bank on interest to finance yourself?

Increased Job Saves Customer Money*

By F. D. McKinstry—Illuminating Engineer—Bureau of Power & Light, Los Angeles, Cal.

The small job referred to in this discussion is a typical lay-out made by those not familiar with modern lighting standards. The original wiring lay-out for this job was made by a draftsman of a wood-working firm who were going to furnish the show-cases, counters, etc. Those in the electrical industry who are not engaged directly in lighting would be



A—Typical Layout of Small Job.
B—Same Job with Adequate Layout.

surprised to learn of the many wiring job lay-outs made by those outside of the industry.

Our department was asked to make an illumination recommendation for this specialty store, which was one of a chain of similar stores in our territory. The store was located on a main street in a class "A" building which was to be remodeled, store being 20 ft. wide, 36 ft. long, with a 13 ft. ceiling. As the window lighting as layed out by the wood-working firm

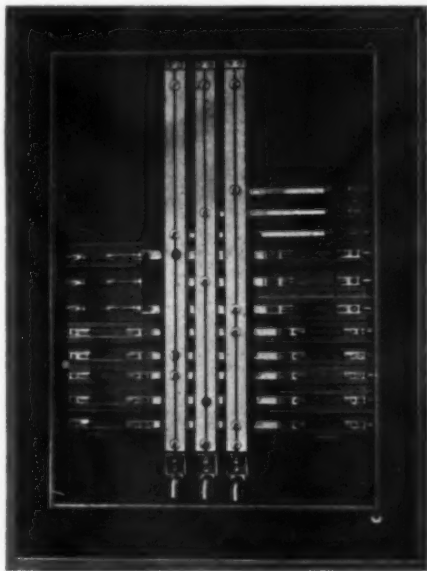
	6-300 WATT JOB	4-500 WATT JOB
Wiring	\$ 50.59	\$ 41.52
Semi-indirect units	123.48	(Encl. Globes) 54.44
Lamps	7.50	8.00
Total first cost to owner	\$181.57	\$103.96
Per cent increase to contractor		75%
Wiring material (Contractor's Cost)	\$ 19.51	\$ 16.30
Units	80.26	35.39
Lamps	4.88	5.22
Total merchandise	\$104.65	\$ 56.89
Per cent increase to jobber		84%
Manufacturer (deduct 10% of above)	\$ 94.18	\$ 51.20
Per cent increase to manufacturer		84%
Energy cost per year	\$275.64	\$303.84
Saving to consumer per year		\$ 28.20
Difference in first cost		77.61
Therefore better lighting job paid for in less than 3 years.		

*Presented before P. C. E. A., Fresno, Cal., March 21, 1928.

Season's Greetings



THE BRYANT ELECTRIC COMPANY



Note:—
in the upper right and left corners that space is provided for the installation of any future circuits from 10 to 200 ampere capacity.

A screwdriver—

is the only tool needed in making circuit changes on this panel!
With the LEXINGTON Convertible Distribution Panel the electrical contractor can alter the ampere capacity of the individual circuits from 10 ampere to 200 ampere, according to the load requirements, with only a screwdriver as a tool.
The individual circuits, being held in place by screws fitting in the bus bar slots, may be moved and rearranged vertically in a great number of positions—this is true flexibility.

THE LEXINGTON ELECTRIC PRODUCTS CO., Inc.

207 E. 43rd Street
New York, N. Y.

12 Chapel Street
Newark, N. J.

PANEL BOARDS—STEEL CABINETS—SWITCHBOARDS—SWITCHES

Put "BELSON" on
all your buying lists
or index cards.



FLOODLIGHTS

for aviation fields, theatres, public buildings, for contractors on night-work jobs; for signs, advertising displays—for EVERY floodlighting purpose.



We offer these lights in
Cast aluminum, with Chromium
Reflectors, when desired.

Spun aluminum, with our exclusive
bayonet lock.

Spun copper—with bayonet lock.
Full range of sizes to accommodate
lights from 200 to 1500 watts.

Improved designs, easy to install;
quickly get-at-able for cleaning and
for renewing globes. Cover a wide
lighting area and are quickly ad-
justed and locked in any position.
Give maximum lighting per unit of
current. Last long. Your custom-
ers will come back for more.

On Theatre Lighting Jobs—get our
prices

Floodlights	Covelights	Sign lights
Spotlights	Louvre lights	Exit signs
Footlights	Border lights	Cloud effects

Send blue prints for estimate. Also, talk to us about put-
ting some of our quick-selling items into your retail stock.

BELSON MFG. CO.

808 Sibley Street,

Chicago, U. S. A.

was fairly good, this discussion will be confined only to the lighting and wiring of the store. The original wiring lay-out called for four 500-watt outlets down the center of the store, spaced on about 9 ft. centers. The store owner had decided to install 18 in. enclosing globes.

Our illuminating recommendation specified six 300-watt outlets and the installation of six 300- to 500-watt semi-indirect type of units. The semi-indirect units were recommended as they would provide a more even distribution of light and we could go to a higher intensity and without glare at an intensity of about 8 ft.-candles.

In order to ascertain the benefits that accrued to the electrical industry as a result of our efforts to promote better lighting on this particular job, we had the Estimator's Section of the California Electragists estimate the cost of wiring as originally planned and also the cost of wiring to meet our illumination recommendation, with the results as shown on the previous page.

* * *

A. E. I. Staff Man Meets Reading Contractors

Hardly a week passes that a local contractor group or electrical league does not request the attendance of an A.E.I. staff representative at a special local meeting, frequently calling upon him to address the meeting or lead the discussion on some fundamental phase of the contracting business. Such engagements are made when the program permits, as the A.E.I. desires to render every possible service to local associations seeking assistance in organization, and specific information regarding the conduct of helpful local activities. Such a meeting was called late in October under the auspices of the Reading Electrical League, when sixty contractors from Reading and vicinity, together with other league members, heard H. W. Barnes, assistant to the general manager, A.E.I., present the subject of "Over-head" as applicable in the average contractor's operations. Great interest was expressed, and H. A. Thomas, secretary of the Reading League, has requested a return visit at a later date for further development of the subject. The contractor membership of the League is considering charter affiliation with the A.E.I. as a local chapter.

HIGH STANDARD

IT has always been our policy to set product-merit over quantity production. Highest standards of quality are constantly adhered to—from the selection of raw materials to the application of the smooth, glossy finish. This—and the fact that each length of conduit is identified for your protection—are the reasons why you see Mohawk being used by many of the larger contractors.

Pipe bends so easily you hardly realize it is steel

Clean, even threads that make work a joy

Mohawk may be had in either Indian Black (enamel) or Indian White (galvanized). Ask your jobber or your nearest Mohawk Conduit Company branch.



MOHAWK CONDUIT CO., INC.

COHOES. NEW YORK

BRANCH OFFICES: CLEVELAND-ST. LOUIS-SAN FRANCISCO

NEW YORK-CHICAGO-DENVER-LOS ANGELES

SEATTLE-BOSTON-NEW ORLEANS

Manufacturers' News

Despard Leaves McGill

V. R. Despard has resigned as vice-president and sales manager of the McGill Mfg. Co., Valparaiso, Ind., and has taken a substantial interest in the Chicago Mica Company and the Fibre Insulation Company of Valparaiso. He retains a large interest in the McGill company, and remains as a director. Charles S. McGill has succeeded Mr. Despard as sales manager and will also have charge of advertising and sales promotion.

The Hoist & Crane Engineering Co., New York, N. Y., is issuing data sheets descriptive of the following devices for electrifying over-head track for hoists and trucks: Conductor supports, insulators, ears, strain insulator and take-ups, conductor fittings, connectors and current taps.

Westinghouse Financing Subsidiary to Discontinue

Commercial Investment Trust Corporation announces a contract with the Westinghouse Electric & Manufacturing Company under the terms of which it will extend the financing facilities heretofore provided by the Westinghouse Acceptance Corporation.

The Westinghouse Acceptance Corporation was formed a number of years ago to specialize in giving installment financing service to manufacturers and dealers selling a product containing Westinghouse equipment. It has maintained a national organization serving many manufacturers and distributors of washing machines electric refrigerators and other domestic and commercial appliances. Its annual volume of business amounted to many millions of dollars.

Pocket Size Lighting Data Book

Pittsburgh Reflector Co., through its illumination engineering department, has compiled a pocket size booklet on lighting data accumulated from twenty years' experimentation in this field. This material is augmented by a complete pictorial display, and accompanying descriptions, of the line of reflectors and lighting accessories manufactured by the

Pittsburgh company. Diagrams to aid in installation are included with each illustration.

* * *

Herwig Appoints Agents

The Herwig Co., Chicago, has appointed the following agents: A. A. Maybee, Box 175, Alameda, Calif.; Hoadley-Brookes, 902 Seaboard Bldg., Seattle, Wash.; P. O. Higgins, 204 Day St., Galesburg, Ill.; Lighting Specialties Co., 548 Fourth Ave., Pittsburgh, Pa., and C. C. Pierce, 11 High St., Boston, Mass.

* * *

Employees Purchase Graybar From Western Electric

Purchase of the Graybar Electric Company by employees of the company, recently organized as Graybar Management Corporation, has been announced by Edgar S. Bloom, president of Western Electric Company, Inc., former owners.

All of the capital stock of the Graybar Management Corporation has been acquired by officers and other employees of Graybar, marking



A. L. Salt, President
Graybar Company

the most important step taken by the company since 1926 when the present name evolved from the supply department of Western Electric Co. Provision is made in the purchase agreement for the perpetuation of

the pensions, sickness and other benefit plans enjoyed by employees of Western Electric.

Management of the company will continue as at present. The board of directors of the Graybar Management Corporation which will control the company consists of the following: A. L. Salt, New York; F. A. Ketcham, New York; G. E. Cullinan, New York; L. M. Dunn, New York; W. J. Drury, New York, eastern district manager; W. P. Hoagland, Chicago, central district manager; E. J. Wallis, San Francisco, Pacific district manager; G. T. Marchmont, Atlanta, southern district manager; R. W. Van Valkenburgh, Dallas, southwestern district manager.

* * *

Wagner Makes Changes in N. Y. Staff

Important changes have been made in the personnel of the New York staff of the Wagner Electric Corporation of St. Louis, releasing E. W. Goldschmidt, eastern executive representative, from the duties of district manager of that territory, and promoting Harold N. Felton, until recently manager of the Milwaukee office, to that post.

Mr. Goldschmidt, who has been the representative of the Wagner Electric Corporation in New York City for twenty-five years, and who is chairman of the exhibition committee of the National Electric Light Association, will now devote all of his time to contacting with the electric light and power industry.

* * *

Home Wiring

The third edition of a booklet entitled "Wiring the Home for Comfort and Convenience" is being distributed by the Frank Adam Electric Co., St. Louis. This booklet, which is for use by the prospective home owner, takes up each room of the house, giving reasons why certain wiring suggestions are made.

* * *

Schweitzer & Conrad, Inc., announces the appointment of Arvid Wickstrom as its Duluth, Minn., correspondent.

